THE

Journal of American Medical Association.

EDITED FOR THE ASSOCIATION BY N. S. DAVIS.

PUBLISHED WEEKLY.

VOL. I. SATURDAY, JULY 28, 1883. No. 3.

ORIGINAL ARTICLES.

ADDRESS OF THE CHAIRMAN OF THE SECTION ON PRACTICE OF MEDICINE, MATERIA MEDICA AND PHYSIOLOGY.

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Delivered to the American Medical Association, June 6, 1883.

GENTLEMEN OF THE ASSOCIATION—

In the development of medical science, men have been compelled to grapple with some of the most intricate and difficult problems which can challenge investigation.

In studying those higher relations which lie in part beyond the limits of finite conception, reason may properly defer to faith, and, seeking the guiding hand of revelation, walk with a wisdom other than its own. But in medicine it is not so. Forces, mental and material, interchangeable, inter-dependent, and inseperable, manifest themselves in ways so manifold, and with so many essential facts undiscovered, that reason is compelled to thread her way with steps slow and uncertain, sometimes, in truth, oft times in error, ever painfully conscious of her weakness, and of the mysteries that confront her on every side. Thus only may we account for the seemingly meagre fruitage which represents the labors, for more than two thousand years, of some of the ablest minds the world has ever seen.

Those great problems of health, and of disease, of life and of death, which affect the well-being of the race, have been matters of patient investigation by many of the foremost men in every generation. And many of them have wrought out work which will endure as long as literature shall survive. But the essential causes of diseases have, in the main, been so obscure, and their expressions so varied and complex, that the best of men have been compelled to conclusions largely inferential. Accordingly, in tracing the progress of medicine through the centuries, we encounter on the one hand, flights of imagination and fanciful speculations which challenge comparison and provoke our mirth; and on the other, ingenious reasonings and logical conclusions which surprise us by their truthfulness.

In the absence of positive knowledge, no man can lay a restraining hand upon the fancies and credulities of men, and medicine has ever been the fruitful field, above all others, for their exuberant development. Speculations have been piled mountain high by one generation of workers, to disappear before another as chaff before a driving wind. But despite the winnowings, there still remained some golden grains of truth, and the treasure-house has been slowly but surely enriched by these garnerings of the ages. The mile-stones that mark the years of special achievement are set with sparing hands, and the records of successive years so merge and blend with their associates, that each seems but a link in an unfolding endless chain. How then shall I presume to stand in the presence of these representative men, and fulfil the duties of this hour by reciting to you the progress of investigations in physiology, in materia medica, and in medicine during the brief period of a single year? And yet I may not wholly shun the task as though it were an idle one, for I am well persuaded of this year that its labors will not be barren of good results.

Let me first present some topics in this brief review, which pertain to medicine in general, and quickly come to others, more legitimate matters for this paper.

First. I think we may congratulate ourselves that the year has been so prolific of trustworthy, accurate, and able workers. Probably no year in the world's history has witnessed an equal amount of legitimate original investigation. Fewer men are willing to shine with borrowed light. No man can longer assume a solar altitude, to illuminate a hemisphere. The present army of workers seems rather a galaxy of stars, differing, of course, in magnitude, but each according to his measure, a light unto himself, ready and generous to accept what can be verified, and as quick to criticise and, if need be, reject where the data are insufficient. The labors of such men are destined to achieve results which could never be accomplished otherwise, and there is born of such united work a sympathy and an enthusiasm which is becoming world-wide and grand. Neither England, Germany, France, nor Switzerland are indifferent when Bizzozero speaks from Italy, nor is the old world regardless of the new.

Second. The medical journalism of the year claims favorable comparison with any that has gone before. An abler literature is given to the press. A wiser supervision is clearly manifest. New and able contributors are coming to the front. All departments of medical investigation are having an abler expression of their work. Some curious deformities are growing more and more conspicuous—journals with representative names, with bodies very small and well-nigh meatless, are floated aloft on wings of magnificent proportions, upon whose almost countless folds advertising manufacturers display the merits

of their wares, and, assuming the direction, propose to dictate to the profession how medical journals shall be run. There will be a movement in that matter some day, and, when there is, that hitherto unbridled license will be abated.

Third. The masses of the profession are steadily ascending to higher positions of attainment. They read more; they think better; they practice their profession with more intelligence and with better success. At no time before were there as many talented and industrious physicians working in all the domain of medicine and surgery as there are to-day. Feats are now accomplished by hundreds of operators which would have immortalized either of them, not a hundred years ago. And pathological investigations and physical diagnosis have reached a point never before attained.

More than in any year before, the centers of intensest study, have been within the range of microscopic vision.

In the Dictionnaire Annuel for 1882, Garnier's opening words are these: "*Des Microbes! tojours et partout, des Microbes!! Rien que des Microbes!!!*" And what has been true in France has been equally true elsewhere.

The discoveries in science are not always comforting, and I doubt whether it really conduces to our happiness to discover what animated bodies we possess.

But—receive it as we will—the microscope commands the advance to-day, and assertions based upon its revelations, be they true or false, can only be tested, accepted, or rejected upon authorities equally skilled in microscopy. In this new field to which so many eyes now turn, and in which work so important is being done, no man can longer speak as an authority who can not, with equal skill, review the work of other men. A great educational work is going on. Men yet differ vastly in the interpretation of what they see—as we shall have occasion yet to notice—new fields are opening every day, and new facts are added to our knowledge.

The limit of measurement has now attained to the one hundred and forty-six thousandth part of an inch! Beyond this lies the *molecule*, and beyond the *atom!* It is idle to speculate as to where the limits of human vision shall finally fall; but, from the diligent study of what lies within the present range there surely can come no harm—there is certainly a promise of great good.

In microscopy two subjects more than any others command attention at this hour. The one is the composition of the blood! the other, the agency of microcytis in the production of diseases.

There has been of late a bit of sharp practice with glasses trained upon the red corpuscle; some asserting most stoutly that a close reticulate network pervades every part of the cell, and can be seen most distinctly by those who know how to see. To which others reply, We can see what you see, when our glasses are mal-adjusted! Correct your optics and your network will disappear.

In this contest between "I do," and "You don't," I think the latter has rather the best of it.

There is another question under discussion which deeply interests medical men. The occasion was this. On the 14th of January, 1882, Prof. Bizzozero, of Turin, announced in one of the prominent medical journals his discovery of what he was pleased to call the "*Blut Plattchen*," and which was brought prominently to the attention of English and American readers by a leader which appeared in the London *Lancet*, under date of Jan. 21, 1882, entitled "The New Blood Corpuscle."

It was claimed as a new discovery, distinct from the invisible corpuscle of Norris—not derived from other leucocytes,—playing an important part in the functional alterations of the blood,—that they rapidly increased in certain morbid conditions, notably after bleeding, and have an active agency in the production of thrombi.

The chief point of interest is the *role* they are asserted to play in the development of fibrine, for if this view is accepted, the late theories of fibrine formation by the agency of a ferment, or of chemical affinities, are set aside, and that of morphological changes induced by the degeneration of these cells must be accepted instead as the essential fact in fibrine production.

This article commanded very general interest, and attention was immediately turned to the valuable labors in this same field by Prof. Norris, of Birmingham, England. His labors upon blood, its physiology and pathology, had by no means commanded the attention which their worth deserved; but now his results, published at various times during the last five years, are being reviewed with great interest, and it seems to me, as the case now stands, that England and not Italy will maintain priority in the discovery of the third corpuscle.

Time will only permit a very brief reference, while considering the microscopic changes of the blood, to the series of very interesting studies of the blood of John Griscom, a man of fine physical development and then in perfect health, who voluntarily entered upon a prolonged fast, which was commenced on the 28th of May, 1882, and continued for 45 days, these studies being made by Prof. Lester Curtis, of Chicago.

The observations are of special interest as showing the effects of the absolute withdrawal of nutrition for so long a period upon the number, sizes, shapes and structural changes of the various corpuscles discernible in human blood. Some of his descriptions are evidently of the same structures which are just now described by Dr. Norris, in his masterly work upon the blood, which is just fresh from the press, and one of the most valuable contributions to medical science, I think, ever made upon that subject. Further investigations will determine what now are matters of question, and the morphology of the blood is as important as its study is interesting. It is a field demanding hard work, but it promises large returns.

If we turn now to the subject of micro-parasitic organisms, perhaps the most prominent man that confronts us is Dr. Robert Koch. But a few years ago he was an obscure physician in one of the country

towns in Prussia. To-day he is at the head of the Imperial German Health Bureau in Berlin. Probably his name has been spoken and written more often by his professional brethren than that of any other member of the medical profession. This prominence is based upon his discovery of what is becoming familiar to us as the *Bacillus Tuberculosis*. And whether the discovery shall prove fruitful or barren of result, no one can deny but that it was the legitimate offspring of long continued, painstaking and admirable work. By devising new methods of staining, he was at length enabled to find in all tubercular tissue a characteristic *bacillus*. It differed essentially from all other bacteria except those of Lepra, and from these he distinguished it as being somewhat narrower and more pointed at the ends, and by being differently affected by staining. He found these bacilli in all localities where tubercular processes were active. In size they were from one-fourth to one-half as long as the diameter of the red corpuscle. They were sometimes free, sometimes in heaps, and sometimes within the cells—especially were they found within the giant cells of tubercular growths. Not only did he find them in tubercular nodules of the lungs, but in tubercular infiltrations of the spleen, liver, kidney, and pia-mater as well.

As this subject will be more fully considered in one of the sections during the present session, it is not needful that I should give his investigations farther attention now.

One very important question arises in this connection, in fact a pivotal one, upon which all others must turn. The presence of specific organisms in many forms of disease even the most skeptical must concede; but the main question is this, are they causative, or only concomitants?

It certainly will not be conclusive to simply assert the presence of characteristic bacilli in the parts diseased, for in such the soil may be nourishing to the one and sterilized for others, affording as many pretty examples of the survival of the fittest.

Accordingly, Koch and many others are now giving their attention largely to the matter of germ culture and the reproductions of specific diseases by successive generations of characteristic bacilli.

Koch narrates at least one hundred experiments upon guinea pigs, rabbits, and cats, using sterilized ox-blood-serum most successfully as a culture fluid in the germination of bacilli, and he says, that "when a small quantity of this infective fluid was injected into the anterior ocular chamber of guinea pigs, and also into cats and dogs, which do not ordinarily become tubercular, general tuberculosis made its appearance in about ten days, and ran a rapid and fatal course."

Perhaps anthrax stands at the head of the list of diseases that can be propagated by inoculation with specific bacteria. This assertion has been confirmed by so many experimenters, as to leave no reasonable doubt, but that this disease is dependent upon the presence of specific organisms, and that after successive generations, by careful culture, have been isolated from other contagium, the introduction of these micro-germs will develop this specific disease.

Erysipelas is coming to be classed in the list of parasitic diseases. Fehleisen asserts that he has carried the culture of the specific bacillus to the 9th generation, and by the inoculation of rabbits and of one human subject, with the infective fluid, he has developed typical forms of erysipelas.

In leprosy the discovery of a distinctive bacillus is asserted by some, and denied by others.

The same with reference to gonorrhoea and the micrococci of the vaccine pustule, and those of typhoid fever.

In most cases the bacillus has not been so absolutely separated from other possible causes, as to permit the assertion that it is *solely* responsible for specific results. At this point we rest the review of present microscopic work.

The subject is of utmost interest, and each year's development in this direction, will command the careful attention of every well educated physician.

Of course, if we accept the germ-theory of diseases, our thoughts turn at once to their germicidal treatment, and investigators will soon be following in the footsteps of Sternberg, with experiments, to determine the germicidal value of therapeutic agents.

The question that concerns us most, is not as to whether we can destroy bacteria, but whether they have not a greater vitality than the tissues of the human body, and whether, in a germicidal warfare, the human organism will not first succumb.

In this respect our successes may be similar to those in the celebrated surgical case, in which the tumor was saved but the patient was lost.

In materia medica the new remedies proffered to the profession are almost without number, but none seem to me so prominent as to command special attention in the year's report.

I am happy to announce to you, that a law has just come into force in Italy, which prohibits the sale of patent medicines throughout the kingdom, unless the precise composition of the medicines is stated. This important decree has been promulgated by the Minister of the Interior, the Customs, and the sanitary authorities, with instructions for its rigid enforcement.

How long shall enlightened America fall so far behind Italy, in the enactment and enforcement of similar laws?

With a view to the advancement of medical science in America, to the end that its people may command a better service, and that in the advances in the years to come the profession in our country may be more creditably represented, I shall crave your indulgence while I close this paper with the following questions and suggestions:

Is the time not nearly at hand when the medical men of the United States, governed by motives which rise above and control all selfish considerations, shall be prepared to institute something like the following action:

Let the medical profession in each State, in such manner as seems most satisfactory, designate one of its number, to constitute, with a like-appointed member from each of the other States, a Nominating Board.

Let it be the duty of this board to nominate a list of men suitable for appointment by the President of the United States as members of a Medical Bureau, to be constituted with specific powers and duties. In this bureau, composed, say, of ten members, let the army, the navy, and the marine service have a proper representation.

Let the members of the bureau be subject to removal only for causes, one of which shall be the attainment of a specified age; and receive a salary, each, of not less than $10,000 annually, to be paid by those who are applicants for the degree of Doctor of Medicine.

Let the laws of the various States be so modified that the power to confer medical degrees shall vest solely in this body. Let sessions for examinations be held in all the States at such times and places as wisdom may dictate, to the end that all medical students shall have ample facilities for attendance.

Let the standard of requirement be reasonable, but, at the same time, such as shall inspire ambition in the student, and respect at home and abroad.

Let students graduated by the National Medical Bureau receive an honorable distinctive title, say that of National Fellow of Medicine.

In due time let all governmental appointments, as in the army, the navy, and in the marine service, be made from this list. In all contract service and marine and railway service, let such graduates have preference, and in all civic positions let them receive encouragement. Let the State boards of health be empowered, after a specified time, to require that those only who are thus graduated may legally practice medicine in the several States.

The highest interests of our commonwealth are inseparably related with the highest attainment possible in the successful treatment of diseases. Let it be clearly apparent to the legislatures of the several States and to the national government, that the general good could best be served by such procedure, and the necessary laws would be speedily enacted.

To such a movement the colleges could offer none other than a selfish objection, and how long would the will of a few hundreds of professors stand in the way of the expressed convictions of the tens of thousands of physicians.

Let the physicians encourage only those to enter upon the study of medicine whose ability and previous education give reasonable assurance of an honorable graduation. Let them advise the attendance of these students only at such medical colleges as have made this provision for final graduation, and all reputable colleges would soon fall into line.

I see no manner in which a common standard of requirement can be instituted in this vast republic but in some such way. I think I see in such a plan, wisely and impartially executed, the possibilities of a medical culture of the masses of the profession such as the world has not yet seen.

Is it not time that the profession began emphatically to assert its own self respect by calling a halt, and requiring that the indiscriminate grinding of the diploma mills shall cease.

With the medical profession of America such an advance is possible, and with them is vested the power to correct abuses which are only too apparent.

THE TREATMENT OF YELLOW FEVER.

BY ROBERT D. MURRAY.
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[Read to the Section on Practice of Medicine, etc.]

In presenting this paper, I do not propose to announce any new or certain method for treating a case of yellow fever, or to collate an array of cases that would prove a definite plan to be invariably successful, but I will make some practical remarks on the management of yellow fever, most of which are the gleanings of actual experience in the yellow fever epidemics of 1873, 1875, 1878, and 1882.

I wish to protest in advance against nihility and theoretical therapeutics, which find favor with some. There is such a process, or art, as treatment of yellow fever, and there is also much manœuvering called treatment, the perpetrators of which should be sent to Labrador or a colder region on the first news of an outbreak; and theorizing in general is of best service in a similar climate. It has been my fortune to witness much bungling and to see experimentation signally fail.

The common sense, nature-aiding methods of years, have been and are successful enough for practical purposes. In battle, soldiers are slightly, severely, or mortally wounded; the latter class die, the former get well, but the others must trust to luck, doctors, and grit—but some of them die from stupid bungling, or accident, or loss of pluck at last, the results being charged to the enemy.

So it is with yellow fever patients: Some are fatally poisoned at the beginning, a majority will ordinarily get well in spite of bad medication, while many die from experiments, nihility, fright or accident. It is impossible in the onset of an attack to prognosticate the result, as some cases, apparently congestive, will at once respond to palliative measures, and others who apparently promise an ephemeral case, deceptively glide into continued fever or fail in the stomach or kidneys and go on to a fatal result, too often because the preliminary mildness of the attack threw doctor and patient off their guard. Thus treatment and observation are necessary in all cases. That treatment shall be effectual even to the last possible chance, and in no case cause serious consequence in itself, is important.

I do not in this brief paper undertake to give any pathology of yellow fever which shall furnish a clue to rational treatment, but I assume that the condition I see when first visiting a case is a result of aforetime processes, and that I cannot entirely arrest a process already nearly completed, even if I knew what the process was. Experiments to arrest it will only be loss of time. So I strive to correct the mal-condition and forestall the incidents that are presumably fatal. It is certain that a routine treatment for the most part is preferable to vain seeking after idiosyncracies or peculiar circumstances, but the advisa-

bility of treating the individual patient and not the disease is a truism not to be forgotten.

The importance of early medication cannot be over-estimated, and it must be conceded that treatment to be early in a time of hurry and panic should be simple, effectual and well known. To wait a couple of hours for a physician to come, to send to a crowded or short-handed drug store for medicine, to even deliberate on the necessity for medication, are often delays of sufficient time to preclude a favorable result. The first thing to do in the presence of an epidemic is, therefore, to inform the public what to give in all cases of suspicious nature, or actual attack of the disease. Mustard, castor oil, compound cathartic pills, cinchona salts, spirits, and lemons, should be provided by every householder or placed within easy reach of every possible case. Physicians should carry a sufficient supply of remedies for the conditions or complications that may need immediate attention. Writing prescriptions consumes a double portion of valuable time, confuses judgment, increases expense, and at times impels a physician to postpone a modification, or change, when half confident it should be made, for fear of alarming the patient or his friends by another parade of paper, pencil and directions.

WHAT TO DO FOR THE FEVER.

A person has frontal headache, pain in back and thighs, flushed face, malaise, and temperature of 38 C. or more. Give 1 to 4 compound cathartic pills or 8 c.c. to 60 c.c. castor oil according to age, at once. Give hot mustard foot bath, by placing a foot tub on the bed and under the clothes, bathing feet and legs till water is cooled, taking care to keep the body covered. If the thigh pain is not relieved somewhat, add more hot water. When practicable it is better to give a full length hot bath, and to lash the patient in blankets if there is agonizing headache or backache. After two or three hours of profuse sweating rub off with dry towels, change the bed clothing, place a wet cloth on the forehead and await action of the cathartic. If there is no response from it in 4 or 5 hours, give a saline cathartic or an enema. It is permissible to allow the patient to sit on a close stool or vessel during the first or first two actions.

Give hot lemonade, orange-leaf, lemon-grass, or weak Japan tea for first 24 hours. Cold drinks are allowable, but are to be limited as to quantity. Spt. eth. nit. and spt. mindereri, or solution of potass. chlorat, may be given at regular intervals; not so much for the physiological effect of the drugs, as for the mental peace of the patient, for, as will be mentioned farther on, every possible means must be taken to insure mental tranquility. Insist on quiet and recumbency for at least five days. After 24 hours allow corn starch or hominy gruel, and gradually add milk and broths as occasion demands. This is all that is required in most cases, and additions are inadvisable. If all is well on the 4th day give a tonic of cinchona salt to hasten recovery of strength.

If malaria is mingled with the fever-cause, always give a drachm of cinchona salt within the first twenty-four hours, to all cases. This will modify or forestall delirium and obviate in a measure the danger of a subsequent rise of fever. In such a case cinchona must always be given on the 6th or 7th day to prevent a chill, which may be congestive and more than usually dangerous. I beg to say that cinchona does not cure yellow fever, but the apt use of it will brace up the nervous system in advance of depressing conditions, and in this manner it not only wards off complications, but hastens recovery. The shortening of convalescence is of prime moment, especially if the patient is a physician, commander of a post, or member of a relief committee. During convalescence the tr. ferri chlor, hydrochloric or nitric acids may be administered with the same good effects that characterize their action in other debilitating diseases. But in some cases troubles arise and our hopes of a quiet time are shattered, and we are forced to meet incidents that will tax our patience and skill.

Restlessness is best controlled by potass. bromide and chloral. The medicine should be given by the mouth, as long as the stomach will retain it. They are effectual when administered by enema, but cannot be repeated very often, without injury. Sometimes a simple clyster of soap-suds will check it. Bathing the face and neck with cologne or perfumed water, or the whole body with dilute spirits or dilute vinegar are advisable.

If the temperature persists at 39.° 5 c. or more at close of 48 hours, give a clyster, and bathe the body with a lotion of cinchona salt, acid hydrochlor. with brandy and water every 2 to 4 hours, or perfumed vinegar or aqua sedative. If there is no nausea, continue the warm drinks and give cinchona guardedly. Nausea is an alarming sign and its approach is usually detected by tenderness of stomach. Never ask a patient if he obseryes it? The hint may produce the difficulty we fear. Give lime water colored with milk or just diluted; allow small pieces of ice to be taken and eaten; put sinapism or spice-pepper-plaster on epigastrium; give charcoal moistened with port or favorite wine, if renewed action of bowels is needed, give a clyster.

Vomiting must be prevented for physical as well as moral reasons. On its occurrence give charcoal, ice, lime-water, etc. Charcoal is a valuable corrector of nausea, and if it fails to prevent vomiting the dread of black vomit is allayed more or less by the fancy that the color is given by the remedy. A blister is advisable in some cases, particularly if the odor of the mustard is objected to, or if there is no sign of blood in the vomit after 36 to 48 hours. Applying a cold towel to the neck or passing a piece of ice over face and throat is oft-times effectual. By all possible means prevent vomiting; the loss of blood is of less moment than the alarm and exhaustion produced by the act. If the stomach is filled with the black vomit the best hope is that the fluid will be carried off by the intestines. Long continued vomiting after danger of black vomit is past is best checked by small doses of calomel, hypodermic injection of morphia, cold to the head, and absolute deprivation of food and drink by the mouth. Hiccough is frequently a troublesome complication. Calomel to induce purgation, a clyster of warm water followed by a dose of pot. bromide and charcoal, a tablespoonful of lemon juice,

or a few drops of chloroform are to be tried in turn.

Restlessness, if not relieved by pot. brom. and chloral, and by cessation of all irritating surroundings, may be modified by a continued rubbing of limbs and back with smooth towels or the bare hands. Patients who at the onset have been put under the influence of the cinchona salts will not be as restless as those who have not been so treated.

Constipation is out of the question in a fairly begun case. Diarrhœa and colic sometimes give annoyance. If no contra-indication exists, ordinary means may be used to control them.

The urine should be examined at the end of 60 or 72 hours. If it is albuminous, give 2 to 4 c.c. turpentine in sweet oil, and repeat in three or four hours. Smaller doses may do, but 4 c.c. will do no harm even to children. If the breathing is labored give spirits guardedly and large doses of digitalis. In case the turpentine cannot be retained, it may be rubbed in, and a poultice of digitalis and hops applied to the hypogastrium. Follow the same plan as to suppression of urine, and see to it that the extremities are kept warm by flannel wrappings or other artificial means. Do not mistake retention for suppression. After the stage of albuminuria or suppression, tr. ferri. chlor. is always indicated. I believe that the giving of it in advance tends to prevent the complications, but I doubt the efficiency of all other diuretics.

COLLAPSE.—Put sinapisms or pepper poultices as nearly all over the body as possible. Rub the spine with a sponge dipped in alcohol and capsicum. Give spirits if borne, or by enema. Warm the extremities by hot bottles or bricks. Give rational doses of digitalis.

FOOD.—Give practically nothing for three days, the only admissible articles plain salted hominy gruel, alkaline milk, corn starch gruel, Mexican stole and sweet beef essences; condensed milk should be diluted with lime water. Until patient is safe beyond doubt give these with no additions beyond milk or wet toast, soft eggs and soup. Brandy or whiskey are of advantage in some cases, but wines are by all means preferable. Champagne is best of all if a fresh bottle can be opened every time it is given. Port and Catawba wines cover the widest range, but if more acid ones are liked, they are admissible. Keep up observation as to food of a Caucasian patient for at least a week. Many a convalscent has been murdered by undue feeding, while it is hard to conceive of one dying from simple exhaustion.

OBSERVATIONS.—Keep the patient covered with one sheet and a blanket to continue skin moisture. Do not change clothing unless absolutely necessary. Flannel shirts are advisable despite the eczema they may cause. Let the chamber be light and ventilated, avoiding draughts. Insist on persistent recumbency for at least five or six days, and upon the use of bedpans and urinals. The least muscular effort will sometimes turn the scale when the patient might have recovered.

Avoid heart depressants in all forms; there will be no inflammatory complications to guard against, and the heart will soon get weak enough when deprived of all nutrition from healthy blood, and when it is pumping a sticky, almost tarry fluid, for days at a time. Collapse frequently results from the little extra effort of heart, caused by a bit of startling news, or slight exertion. Avoid opium as long as there is risk of albuminuria. It might be eliminated from the yellow fever supplies with benefit to patients.

The rare neuralgia of the liver as a sequel is most effectually relieved by belladonna. Convalescence is hastened and always assured by cinchona and the mineral acids.

Hypodermic medication is useless during the febrile stages, and is always liable to produce abcesses which are difficult to heal.

As the mind of a yellow fever patient is always clear during the period of greatest danger, the manners of the physician have much to do with the recovery and are of great moment, although they would seem to have no relation to treatment. It is necessary to finesse, and deceive almost every patient as to his real condition and prospects, but owing to the acuteness of the reasoning faculties it is not well to be caught in the deceptions. Do not ask unnecessary questions; make judgment without parade, or prolixity, and so as to not arouse suspicions of danger. Do not ask about the stomach in a direct manner, an apparently careless pressure on the epigastrium will tell you more than the patient needs to know. Use a thermometer not oftener than three times a day, and at the same time do not expect to judge of degree of fever by pulse, or skin, or tongue.

In case of physician or experienced person, always report the fever as one or two degrees lower than it really is, and be sure that no thermometer is at hand for the patient's use. A centigrade thermometer is sometimes advantageous if the patient does not know the rule for conversion.

Visiting by acquaintances should be interdicted and only serviceable friends allowed access.

Deaf and dumb nurses would be ideally perfect. Everything, noises, smells, habits, etc., which can disturb the patient, and rumors, gossips, news, or conversation which might excite thought or worry must be prohibited, and in all ways the patient must be led to consider his condition as favorable. Reports of death and sickness and remarks about absent relatives are cruel. If the patient's will is not made, the mention of the fact will insure the need of one. Paradoxical as it may seem, a crowded hospital ward is the best place in which to treat a large majority. The physicians and nurses go about in a methodical, don't care, matter-of-fact way; all emergencies, bad signs are observed soon, necessary attention is given, no news of panic or death comes in. Sickness is the business of all, other patients are worse off, some who appeared to be worse off are convalescing, and patients get well who under a mother's sympathetic hands would die.

In men particularly, (for priapism and inordinate desire are not infrequently accompaniments of convalescence) coition should be prohibited until safety is absolutely assured, and the only way to secure abstinence is to warn the female as well as the patient in plain terms. Not a few cases of fatal collapse are attributable to the exercise of the marital privilege

before the tenth day of convalescence; and I know of such even after the man had been instructed as to the prostrating effect. Some of these observations may appear frivolous, but the saving of most of the doubtful cases depends so much on observance of all the details of diet and strength-saving, that I have run the risk of being prolix in order to state them. If only a few lives can be saved, the death-rate is made to comport with the possible, and it matters little whether they are saved by drugs administered, or through the common sense instructions of physician and attendants.

Notes:

I am almost certain that I saved the life of an esteemed physician by deceiving him as to his temperature. In disgust that so strong a man could not get up a fever higher than 39 C. or 39.5 C., (when it was, in fact, at one time 41 C.), he concluded that he was not so very sick after all. His three weeks' convalescence with yellowness of eyes and skin and extreme prostration fully evidenced the danger he had been in.

A priest, sick in an upper room, heard some ladies speak of the death (which occurred a moment before) of the commander of the fort, and of the necessity of keeping him ignorant of the fact until his crisis had passed. By a strong assertion of his will he decided not to be alarmed if the news should come to him, and not to ask the usual question about his now dead friend. He recovered; but if he had been startled by the sad news he would have vomited, collapsed and died.

A young man, with physically favorable prospects, conceived that a fellow-boarder was in love with his perhaps fatally ill wife. His inability to protect her by personal attention caused such distress of mind as to continue his fever until the sixth day in spite of all care and effort, and death resulted. His wife was only saved by concealing the fact of her husband's death for twelve days.

I have little fault to find with other plans of management as to medicine, but only give what I have reason to be satisfied with.

Salicylate of soda, carbolate of soda, *et al.*, are useless. Pilocarpin has failed to meet my expectations. Large doses of calomel as a purge causes loss of three to six hours valuable time. The "three times three" treatment is useless in early vomiting cases—*i. e.*, 3 grs. each of quinine, calomel and Dover's powder every three hours. As a febrifuge and diaphoretic it is of service. I have seen patients die with "liver pads" on them, and have removed them to put on a sinapism.

"Liver medicines" are of service in preventing the antecedent constipation, and thus tend to lighten attacks, but they do not prevent.

The "fever cot" is dangerous, expensive, requires two or three attendants on every patient, and is not infallible, as I saw the inventor die on one under his own directions.

The Secretary of the Section has furnished the following brief notes of the discussion which followed the reading of the foregoing paper—[EDITOR]:

Prof. H. F. Campbell, of Georgia, stated that he was impressed by the comprehensiveness of detail exhibited by Dr. Murray in his treatment of the subject. But basing his remarks upon his own experiences of the disease, said he recommended phlebotomy and the administration of emetics and cathartics, in certain cases, and laid particular stress upon the administration of quinine and liquid food.

Prof. Palmer, of Michigan, joined in the discussion; and Dr. Elliott, of Pennsylvania, objected strenuously to venesection, but advocated diaphoresis, and advised moderation in the use of therapeutic agents.

Dr. A. N. Bell, of New York, advocated diaphoresis, the use of sulphur and magnesia to produce catharsis, and absolute physical and mental quietude during convalesence.

Dr. Franklin, of Ohio, favored depletion by the use of calomel, and a strict diet during convalesence.

Gen. Elwell, of Ohio, was invited to a seat in the Section, and favored the audience with his experiences of yellow fever, at Port Royal, in 1862.

Dr. J. B. Hamilton, Surgeon-General of U. S. Marine Hospital service, closed the discussion on Dr. Murray's paper, stating that he believed in the contagiousness of yellow fever, in the value and advisability of quarantine, and urged quarantining, disinfection and cleansing as means of prophylaxis against the fever.

MILK SICKNESS.

BY WILLIAM MORROW BEACH, M.D., LONDON, OHIO.

[A Paper read before the Section on Medicine, of the American Medical Association, at Cleveland, Ohio. at the Session of June 5th, 6th, 7th, and 8th, 1883.]

I believe milk sickness to be a disease *sui generis*. In Madison county, Ohio, where I was born and raised, I presume nearly one-fourth of the pioneers and early settlers died of this disease; nor is its cause entirely eradicated there, or in many other districts of country where it has ever been known to prevail. Its principal fields have been Western Pennsylvania, Ohio, Kentucky, Tennesseee, Illinois, Indiana, and Michigan; and it has probably never been known in New England, west of the great American Desert, nor in any of the countries of the Old World. Its existence as a *specific* diseases has generally been discredited by the writers of medical literature in the eastern cities; and I think it is nowhere mentioned in any text book on theory and practice I have ever read.

The disease in the lower animals is called "trembles;" and "milk sickness," when it affects the human species. The disease is most common in the late summer and early autumn; but it occasionally occurs in the winter season.

Among domestic animals the trembles usually first affects unweaned calves, or lambs or colts. This would be expected, as the poison seeks elimination, or is eliminated in part, through the emunctory of the lacteal secretion; and the unweaned are subjected to the double cause—the cause that affects the mother, added to the poisoned milk it nurses.

It next affects the other animals of the herd that are not giving milk; and the milk-giving animals last of all. This holds true with cattle, goats, sheep and horses.

The poison, whatever it is, is *specific*. The milk, the butter, the flesh of an animal suffering with trembles or in the prodromic stage of trembles, or bordering on the prodromic stage, transmit, or are liable to transmit, the disease to other animals that partake of them.

Wild animals are no less and no more exempt than domestic animals. The wolf, the fox, the wild cat, the wild hog and the turkey-buzzard that partook of the dead body of a deer that had died of the trembles, in the pioneer days of the infected districts, were as liable to contract the disease as the dog, the cat, the hog, the turkey-buzzard, or the fox that eat of the dead body of the calf or other domestic animal of a later day.

ETIOLOGY.

1st. Many of the pioneers, as well as many well-informed laymen and physicians of the present time, attribute the cause to the ingestion of some vegetable by herbivorous animals. These advocates are, and have been about equally divided between the *eupatorium ageratoides* and the *rhus toxicodendron* as the vegetable that contains the specific poison.

2d. Others have claimed, and still claim, that it is contracted by the herbivora drinking from certain sources of water supply contaminated with the specific poison.

3d. Others have claimed that its origin is malarial —marsh misamatic.

4th. That it is of a gaseous or mineral origin, and may be breathed, drank with the water, or ingested as it settles on and adheres to vegetation.

5th. That it is produced by spores, bacteria, or some microscopical fungi or disease germ.

In the consideration of its etiology a few well established facts should be borne in mind.

1st. The trembles are seldom met with in a wet season.

2d. In exceptionally dry seasons it may be confidently expected—in localities where the cause is known to exist—if domestic animals are not cared for by the thoughtful owner.

3d. In fields where the flora may be supposed to be identical, it may be contracted in one field and not in the other.

4th. It is unknown on open prairies or in cultivated fields that have been well opened to the sun and have become "tame," although the fields may not ever have been plowed.

5th. It is so safe, that in the experience of my life-time I have known of no departure from the rule —that domestic animals may roam with impunity through the infected districts anywhere, through the day time, providing they are brought to the inclosure or corral before nightfall, and kept there until the fogs and dews have dispersed on the following morning. All the pioneers with whom I have ever conversed hold to this theory, and it fully accords with my own observations.

6th. Wild and unimproved lands, densely timbered, seem to be the favorite haunts of the poison; nor does the quality of the soil or the character of the soil seem to influence the danger or prevalence of the trembles in herbivorous animals that are exposed at night. The rule holds good in the low lands of Ohio, Indiana, the groves of Illinois, or the high and rugged lands of Kentucky and Tennessee, so far as my sources of information have reached. I have long held the conclusion that the theory of vegetable ingesta alone is not based on satisfactory grounds. Within a few miles of where I live I have known inclosed lands, both in Madison and Clark counties, where trembles will develop during any summer of protracted dry weather, when they would not develop of an ordinarily wet summer; while the flora would be supposed to remain the same from year to year. One claim, however, renders this conclusion less conclusive, and that is that in very dry summers the grass crop becomes so much exhausted that the herbivora are driven to eat of such plants as they might otherwise reject.

But on my own farm, near London, Madison county, Ohio,—composed mostly of level, black, alluvial soil—within the last fifteen years I have cleared up and improved from its natural state about seven hundred acres, over much of which the *rhus toxicodendron* and the *eupatorium ageratoides* were abundant, and yet no case of trembles has ever occured there to the best of my knowledge and belief. And the leaves and the tender twigs of the *rhus toxicodendron* are relished and kept closely trimmed by horses, cattle and sheep.

As to the third, or *marsh miasmatic* theory, I think the cause cannot be identical, as the trembles and milk sickness have never been known, it is supposable, in other countries, or in many sections of our own country, where different forms of malarial disease have always been known to prevail abundantly.

As to the fourth, or *deleterious water supply* theory, I think there is something in it. In very dry seasons, the water supply runs low, and the source of supply, in general, probably becomes stagnant and impure.

Within three miles of where I live, I know of three tracts of woodland, of forty or fifty acres each, which remain uncultivated, as they are retained in that condition to keep up the timber supply for the farms. These woodlands are pastured off until about the month of June each year, and again utilized in winter for feed lots for hogs, cattle, etc., with almost certain safety to the stock; but were the stock left there over into the months of July, August or September, in a dry season, trembles would almost certainly appear, as the experiment has not failed, in a dry summer, within the past seventy years. Some seasons, the venturesome owners keep thinking that they will use them for just a few days longer in the summer; when the appearance of turkey buzzards hovering over the woods in large numbers, suggests to them that the food these scavengers covet lies below them, dead of the trembles.

These three pieces of woodland are a mixture of low alluvial and dry elevations, or ridges, timbered mostly with white oak. To rid them of their danger, it would only be necessary to cut off the timber, and let the sunlight in upon the bare unshaded ground.

In one of these pieces of woodland, the water supply is from a spring, which for many years was the water supply for a household of poor non-paying squatters, and in the twenty-eight years that I have attended professionally all families who have lived there, no case of milk sickness has ever occurred, nor more than the usual amount of remittents or intermittents; but no one ever lived there that owned a cow, or were more exposed by reason of milk, butter, cheese or diseased meats, than their neighbors who lived on cultivated farms.

I accept the theory as to the cause of trembles, that it has its origin in disease germs or spores, bacteria, microscopic fungi, etc.; but whatever its cause, I think it is evident that it is

1. *Specific.*
2. *Infectious.*
3. *Incubative.*

PREDISPOSING CAUSES.

Perhaps the most general predisposing cause is fatigue. I should think that half of the cases of milk sickness I have ever seen in women have followed immediately upon a washing-day, or a day of hard work in cooking or entertaining company, and I recall the case of one man who came up out of a well he was digging, and went directly to bed, where he died ten days later.

Among the livestock dealers in milk-sick districts—it has been the custom, since my recollection, to make one of the stipulations in a cattle trade to have the privilege of running the cattle for five, ten or fifteen minutes, as a test for their safety from trembles. If they had trembles, or were bordering on the disease, more or less of them would be likely to show it unmistakably, whilst running, or within a very few hours thereafter.

PERIOD OF INCUBATION.

This, I think, must be somewhat uncertain. I recall the case of a young girl who was a servant in the family of one Dr. A. W. Field, at Amity, Madison Co., Ohio, about thirty years ago. Her fathers family, five miles distant, in the country, contracted milk-sickness, and she went to visit them on Sunday, before the true nature of the sickness had been pronounced. She stayed to dinner, and ate some butter on her bread, but no cheese, milk, or meats of any kind, and returned to the village in the afternoon. On Tuesday, the second day following, she came down with milk-sickness, but had a slow recovery, while all the balance of her father's family died.

In 1867, in the month of August, I was called to see the case of the well digger before alluded to. He was a farmer, living in Pleasant township, Clark county, Ohio, and was digging a well for the use of his family, at his own house. I suspected milk-sickness. He acknowledged that his cows had "stayed out" two successive nights, about a week before, in the Baily Woods, a heavily timbered, unimproved body of land of several hundred acres, adjoining his little farm, and belonging to some minor heirs in Virginia. They declared their cows and calves were healthy; but I went into the barn lot and commenced chasing the calves, and in less than five minutes one of them developed into an unmistakable case of trembles.

The products of the dairy were used no more by any member of the family; but the wife, who was *enciente*, was taken two days after; and within a week I had five cases in the family, all of whom had a slow recovery excepting the husband, who was somewhat intemperate—and that class of cases generally die.

In August, 1869, I was called to see S. M., on the National road, near the line between the counties of Clark and Madison, in Ohio, and within about three miles of the Baily Woods, before mentioned. Malarial remittents were then prevalent, and I failed to get a clear history of his case, as he was deaf and dumb, and his wife a poor interpreter. I concluded to prescribe quinine; which I had administered in whisky, to reconcile him to the bitter taste of the drug. On the following day I repeated the same; but on the third daily visit I found his wife sick, and I suspected milk-sickness. I ascertained that their cow had "stayed out" one night about a week before, and had probably stayed over night in the Baily Woods aforesaid. I went to the pasture and chased the calf around, but without developing any trembles; but by the next day I found the woman with a well-marked case of milk-sickness; and the calf dead of the trembles.

The husband made a good recovery, from a very mild case of milk-sickness, in which there was no vomiting, no retching, but simply the symptoms of the initial stage before vomiting supervenes; whilst the wife died on the twelfth day of her illness, and an only child, a boy, twelve years of age, escaped entirely.

In the winter of 1874-75, I was called in consultation at night, with Dr. James B. Sprague, to see some cases in Brighton, Clark Co., Ohio.

I found the husband, aged about forty-five, a cooper by trade, in *articulo mortis*. I found his wife, about forty, in but a little better condition, as she died about twelve hours later.

Now the question in these cases was, where did the disease come from? A beef had been sold by retail through the town the previous week, and suspicion pointed to that as the cause; and the development of four additional cases in another family, about four days later,—all of whom had partaken of the suspected beef, seemed to strengthen the suspicion; although other families who bought of the beef escaped.

And then another question arises, where and when had the beef contracted the disease? That cattle *may* have trembles in the winter season, is a matter of occasional observation; and the old citizens generally attribute it to the feeding of cattle upon wild or swamp hay. And that suspected animal, it was ascertained, had been feeding from hay cut in a boggy meadow, over which about one hundred acres of the drainage of the aforesaid Bailey Woods spread itself as it sought the sluggish ditch running across the meadow.

The disease germ in the animal may have been incubating since the summer season; but it would seem quite as probable that it was attached to the grasses and survived until the proper nidus was found in the

ingesta of the animal's stomach, when it started to activity and possible multiplication, like a germinating speck of yeast plant.

SYMPTOMATOLOGY.

In the lower animals the disease is called "trembles," from the agitated condition of the muscles in the animal affected.

The first symptom of the disease that is generally noticed, is that the animal is indisposed to exercise. It stands apart from the herd, drooping, languid, with a look of extreme fatigue, and persistently abstains from food.

The second stage is that of trembling, extreme thirst and obstinate constipation. The animal at length can no longer stand, and when it lays down seldom rises again. The decubitus becomes at full length, and the animal becomes a stranger to any manifestations of fear, affection or anxiety. The respirations are slow, the extremities and surface cool, and the eye at length fixed, glazed, and the winking ceases altogether. Death generally follows—occurring, ordinarily, from the eighth to the tenth day.

In milk sickness the patient is apathetic, complains of malaise, weakness, indisposition for exercise, loss of appetite or loathing of food, and sometimes of slight nausea. This condition may run on for several days, gradually becoming more pronounced, when vomiting supervenes, and the patient finally takes to his bed. There are no chills, no rigors, but usually an unsatisfied thirst. The tongue is large, flabby, tremulous, moist, and heavily loaded with a dirty white coating. The temperature of the surface sinks below that of normal. The skin is dry, and sensible respiration suspended. The abdomen is retracted and flabby, and comparatively empty. Peristaltic motion seems absolutely suspended; and from that cause, probably, and the general suspension of alimentary secretions, the bowels become, from the first, obstinately and persistently constipated.

The breath becomes offensive, with an odor that some people claim is peculiar to milk-sickness alone. I am led to believe that this may be so, but my observations do not fully confirm me in the belief. The urine becomes diminished, sometimes to eight or ten ounces a day, and generally clear and limpid. The pulse is variable as to frequency, but is always weak and easily compressible, with labored action of the heart and pulsating aorta. The temperature rises in some cases to 99°, but is usually below normal.

There is a marked degree of hebitude and indifference, and even in cases where the patient expresses no hope of recovery; the ordinary solicitude for the future of the family and friends is rarely alluded to.

There is an intolerance of covering for the body, especially of the extremities; and I recall one case in which the patient would give no rest to the nurses only as they kept his hands immersed in a basin of cold water; and the ordinary efforts resorted to for warming up the extremities usually are attended with an aggravation of the vomiting or retching.

As the disease advances, the exhaustion becomes so extreme that vomiting is superseded by a feeble retching effort, that to be heard once is to be remembered always.

The patient seems to become more and more somnolent; but there is seldom oblivious sleep; and if there ever is, at all, it is of short and fitful duration.

The vomiting first, and the retching in the later stages, continues to the very close of life; or until coma and oblivion shut it off.

In the later stage the fluid ejections from the stomach are tinged like the indigo-blueing water used in laundries.

These symptoms increase as the disease advances; the hebitude assumes a semi-comatose condition; the respirations decrease in frequency, and are variable—sometimes profound and sometimes scarcely perceptible—like the respirations of a hibernating animal. The prostration sometimes becomes profound, the process of winking suspended, and the conjunctiva and cornea become dry and glazed. The hebitude increases to somnolency, and the somnolency to a coma. There is stasis of the capillaries, and the vital forces, yielding one by one, the patient dies without a struggle and almost without a sign. Some cases are mild, like the one of the deaf and dumb man I have alluded to, and in bad cases, when recoveries take place, the convalescence is by slow and almost imperceptible stages. I think I never met with but one case in which there seemed to be a crisis, characterized by a sudden restoration of the functions. This was in the case of a child—a girl about twelve years old, in the family of the well-digger before alluded to. On about the tenth day of her sickness I gave up all hope of her recovery. For two days her coma had been continuous; the process of winking suspended for forty-eight hours, and all signs of vitality nearly suspended. Altogether unexpectedly to me she had a dejection, deep green in color, of about one quart, of the consistency of soft soap. Twelve hours later the respirations had increased by at least five in the minute, and she had been noticed to open and shut her eyelids four or five times. She gradually recovered.

PATHOLOGY.

The consumption of tissue in this disease is limited, and not like the consumption of tissue in continued fevers. There has been no tenderness over the epigastrium, or the bowels, and the post-mortem shows no characteristic symptoms of inflammation in any part of the alimentary canal. The stomach is found empty and the contents of the intestines consist principally of lumps of a dark-colored, dry, tenacious feculent matter—much the same in appearance as the evacuations, whenever they occur in these cases in the course of the disease. I think there are no special characteristic pathological symptoms by post-mortem unless it be the above named appearances of the contents of the intestines.

TREATMENT.

This, to a very great extent, has probably been empirical. The aborigines in Central Ohio, and possibly elsewhere, are said to have placed some reliance on the use of pulverized charcoal, suspended in milk. I used this not infrequently in the early days of my practice, and sometimes have thought that its persistent use did have an influence in allaying the nausea.

Effervescent mixtures—carbonic-acid water or soluble citrate of magnesia, or lime water, however, have seemed to give me more satisfactory results, if I have ever had any satisfactory results from anything. Frequently repeated teaspoonful doses of pure olive oil was a favorite remedy in domestic practice; and I have used olive oil in four-ounce doses, repeated about four times a day, per rectum, but with no appreciable results. Emetics were sometimes used by the botanic physicians; and drastic cathartics—calomel, jalap, etc.—by the rrgulars, in an early day; but probably only with the results of hurrying some off who might possibly otherwise have recovered. Mercury was not infrequently tried, as in mechanical obstruction of the bowels; but I never saw a case so treated which recovered, nor ever saw a globule of mercury that had been passed *per anum*.

I recall the cases of the first family into which I was called, professionally, in the capacity of a medical adviser, in cases of milk-sickness, in the autumn of 1853. The family were residents of Darby township, Madison county, Ohio, on the banks of Little Darby—a sluggish stream of two or three rods in width. One child was already a corpse, and the father died on the following day. There was another one of the family sick for four or five days; and I recommended the attending physician to give whisky and quinine—a remedy recommended probably for the first time in that settlement. I cannot say if my recommendation was carried out, but the patient recovered.

The next family was in the autumn of 1855, in Monroe township, Madison county, Ohio. One of the cases, a young lady of eighteen, was in the fully developed stages of the disease, and died on the fifth day. Four others of the family—the mother who was *enciente*, in the sixth month, and three children, were simply in the prodromic stage,—with lassitude, hebitude, and slight nausea. There was consternation in the household when the disease was pronounced; and in the prodromic cases I advised stimulating doses of spiritus frumenti, every 4 hours, in the shape of punch, egg-nog, stews, with sugar, or with sugar or peppermint, or straight, as was most desirable to the patient, coupled wfth fresh slippery elm bark mucilage, as a drink, and avoidance of all unnecessary exercise; and none of these four cases advanced to the stage of persistent vomiting, and all recovered within a week or ten days.

Within the last twenty years I have avoided the administration of active cathartics,—as there is suspended peristalsis during the pronounced stages of the disease,—and have confined myself generally to mucilage of fresh slippery elm as a drink, occasional small effervescing draughts, when agreeable to the patient, and alcoholic stimulants either *per orem* or per rectum, in all cases, with better general results than when I vacillated too much from this course, in the earlier days of my practice.

In "trembles" the domestic remedy that was of the most general adoption, was feeding the animal with green corn, freshly cut from the field. If the animal would eat enough to act as a cathartic, it would generally get well.

When I am called upon to prescribe I recommend four ounces of whisky to one quart of water, repeated every four hours. Deaths from trembles seldom occur when this is commenced early in the case and followed up long enough; or until convalescence begins.

MECHANICAL REMEDIES IN THE TREATMENT OF SKIN DISEASES.

BY JOHN V. SHOEMAKER, A.M., M.D., PHYSICIAN TO THE PHILADELPHIA HOSPITAL FOR SKIN DISEASES.

[Read to the Section on Practice of Medicine, Materia Medica, etc, June, 1883.]

GENTLEMEN: I do not propose to read my paper *in extenso* before the Section this afternoon, but while giving its salient points, I shall reserve for publication, in case of acceptation, its entirety.

There are a number of remedies which can be used in the treatment of skin diseases which cannot be classed as drugs, but being mechanical in their application may be appropriately termed mechanical remedies.

They are massage, compression, blood-letting, incision, excision, enucleation, scooping, scraping, setons, and cauterization, remedial measures which have been in vogue almost from time immemorial, but which have been more or less lost sight of, and seldom, if ever, used by therapeutists in the treatment of cutaneous diseases.

These are all valuable agents, as I can attest from a long personal experience with them, and I now will proceed to relate what can be accomplished with these mechanical appliances in skin diseases. I will begin with massage,—the first mechanical agent which I shall consider. Although long and favorably known as a general remedy it has, however, attracted little if any attention as a means of treating skin diseases. Its use upon certain morbid conditions of the integument, when properly applied, is often followed with marked beneficial change and at times with complete restoration of the part to its natural state. Massage not only acts in this way locally, but by its indirect effect when used generally, will add tone and vigor to the entire system. This direct as well as indirect action of this powerful mechanical remedy can thus be put into execution both for its local and constitutional effect in many skin affections. Massage, if employed in its original sense, would simply imply kneading; it has now a wider and more general use, and includes as well a group of procedures known as friction, pinching, manipulation, rolling, and percussion of the different external parts of the body. It can be done with the hand or with the additional aid of some fatty substance, a coarse towel, a hair mitten or a brush. It may be performed also by means of ingenious machines that are now perfected and arranged for doing, what the most skillfull manipulator can do with his hands. It is better, should the hands be used, that the operator should be strong, muscular if possible, possessed of activity and energy, cheerful and intelligent, with some knowledge of anatomy and physiology. If he has not these latter acquirements

he should, at least, possess a thorough preparatory training of manipulation. In addition the hands of the operator should neither be too small nor too large, neither long, bony, doughy, or clammy, but should be both firm, soft, and elastic. Now that I have defined massage and how it is used, I shall next speak of its special forms, their mode of application and their effects. The first and perhaps the most common form of massage used in the treatment of skin diseases is friction. Friction can be employed upon the integument either by patients themselves or by a manipulator with the hands and with the aid of some fatty material, liniment, brush, or a coarse towel, or mitten, according to the special indication in each case.

It might also be well to make circular at the same time with the straight line friction. In thus employing friction the whole palmar surface can be used; both hands moving at the same time; according to the method of Graham the one ascending as the other descends, at the rate of one hundred and twenty-five to two hundred and fifty strokes each minute, or two hundred and fifty to five hundred with both hands. The strokes will necessarily be less rapid on the back and back of the thigh, by reason of the skin being thicker and coarser, the muscles more prominent, and the part to which it is applied longer.

Friction can and is usually made in all directions over a surface without regard to any rule, but it is much better and more efficacious to make it either vertical or circular. For example, in manipulating in this way a limb, the upward or vertical stroke from the extremity to the trunk, followed by the same downward movement, will always favor and not retard the circulation, thus giving a soothing and beneficial influence to the part.

The upward stroke should be strong and vigorous, while the returning one should be light and passive, the palm of the hand, however, still remaining in contact with the surface. The effect of frictional massage is to stimulate the lymphatic vessels and veins to augmented action, and thus promote the absorption of inflammatory products, should any exist, as well as adding tone and vigor to the general system. The vessels in course of disease are not only compressed by inflammatory deposits in the tissue, but are also often filled up with plasma and other material, causing stagnation and a loss of their absorbing power. The object to be attained by using frictional massage in such conditions is to empty by this mechanical procedure the over-distended lymphatics and veins, thus increasing their activity, re-establishing their absorbing power, which will enable them to carry off all deposits and restore the tissues to their normal state. Frictional massage can very often have combined with it such movements as pinching, kneading, manipulation, rolling and percussion. This group of procedures can be advantageously blended at times with friction, more especially when the exudation is very great, the innervation of the skin marked, and the object is for a more decided action upon the superficial and deep parts.

[1]Massage.—Its Mode of Application and Effects, by Dr. Douglass Graham. (*Popular Science Monthly*, October, 1882, p. 725.)

According, therefore, to the requirements of each individual case, one or more of these movements can be combined, used alternately or varied.

Thus friction and manipulation can be employed in turn, modified with rapid pinching of the superficial and deep structures, kneading, handling or picking up and rolling the muscles, followed with quick but gentle or vigorous percussion with the palm or sides of the hand, or the ends of the fingers. The action of these combined and varied movements are decidedly more effective both as regards their direct and indirect effects. The lymphatics and veins are emptied, as has already been stated, of their effete products, which cannot return as such, on account of the valvular folds within the vessels. The vaso-dilators are also influenced through the stimulation to the muscular nerves by which the calibre of the vessels are greatly enlarged, thus increasing both the space and speed of the circulation.

Massage employed in this manner not only has this local beneficial influence, but by its alternate contraction and relaxation of the muscles and vessels becomes a powerful aid to the general circulation, furthers nutrition, and is the very best substitute for active exercise.

This general effect of massage Nordhoff shows in his book on Northern California, Oregon, and the Sandwich Islands. In the latter, in particular, he describes how it was employed in place of exercise, being a most valuable device with the natives for aiding digestion, relieving weariness from over-exertion, and both neuralgia and muscular pains. Its beneficial effect in its general action upon the system has also already been clearly demonstrated by Dr. S. Weir Mitchell in his well-known Rest Cure, as well as by Prof. Charcot, of Paris.

Dr. Zabludonski, in a paper read in April (1883), at the Twelfth Congress of the German Surgical Society, held in Berlin, also describes in a clear and vivid manner the physiology of massage. This eminent author based his conclusions of the action of massage upon a number of experiments upon men in different physical condition, as well as upon rabbits and frogs. His investigations "have led him to believe that nearly all the bodily and mental functions could be influenced by the various kinds of massage. The weight of the body is reduced in corpulent and thin persons, but is increased in those of medium build. Capacity for work and bodily strength is increased. The mental processes become more active, and sleep is rendered more sound and regular. The frequency of the pulse is lowered, motility is favored, and sensibility is blunted. These effects would serve to explain the value of the method in affections of rheumatic and neuralgic nature.

Now that I have thus briefly described massage, with its special forms and their modes of application, I wish, in conclusion, to refer to its effectiveness in certain skin diseases. In the dry form of seborrhœa, particularly of the scalp, and in thinning and loss of hair, frictional massage, used with moderation, stimulates and augments the sluggish circulation, furthers absorption, and imparts tone and vigor to the scalp and hair. In indurated acne and in glandular swell-

ings it arouses the activity of the sluggish and choked-up absorbent vessels, and thus relieves the glandular congestion, and the skin again becomes normal in being soft, supple, and elastic, and free from these lesions. It not only has a local beneficial influence upon the class of affections just named, but likewise often removes, or assists in removing, when used over the trunk, many gastric and intestinal disorders which very often keep up the cutaneous irritation. This general effect of frictional massage I have witnessed again and again in relieving and curing constipation and other functional derangements, which are very often active factors in keeping up acne, rosacea, hyperidrosis, seborrhœa, uticaria and eczema.

It is often efficacious in removing scarf, and in cases in which the pigment of the skin is either in excess or deficient in quantity, stimulating to renewed activity the absorbents, and assisting in again restoring the parts to their natural state. Massage, whether made with one or more of the group of movements named, is an invaluable agent in certain neuroses, especially in neuralgia, perverted sensibility, and trophic disturbances of the skin. It exerts in these affections a delightful and pleasing local effect, relieves pain by its sedative and counter-irritant effect, increases the circulation of the blood in the integument, thus lessening its activity in the internal organs, and likewise has as a result a decided tonic action upon the nervous system. Massage as a general remedy is an important and valuable adjuvant in promoting and increasing oxidization in cases of scrofuloderma and in psoriasis. It makes the skin more active, removes effete products from within as well as without, and increases the red corpuscles of the blood. It is not only a good, but even a most useful remedy both, for its general and local effect, in many of the forms of subacute and chronic eczema.

Massage thus applied in some of the subacute forms of eczema, in which the surface is dry, slightly thickened, and covered with groups of papules, will awaken the action of the dormant absorbents, increase the circulation, arrest the intense itching, and very often alone restores the skin to to its natural state. It is, perhaps, in the next variety of eczema, in some of its chronic forms, that massage has been, in my experience, more efficacious and more of a curative agent than in any other of the affections of the skin.

In such cases, where the surface of the skin presents marked infiltration, is hard, dry, rough, thickened, even to a leathery state, and upon which all medication has been used in vain, it will often be found to yield under this appropriate form of treatment.

Massage not only breaks up the exudation, but likewise stimulates the absorbents, and so assists in removing the inflammatory products from the tissues, and restores the skin to its natural soft and elastic condition. In chronic eczema, especially where the parts become covered with confluent patches of papules, and on which there is more or less infiltration, dry, and attended with persistent and obstinate itching, the judicious use of massage will often not only remove the abnormal and pent-up effete products, but will also produce a sedative action on the irritation and give the sufferer a blissful state of repose, followed with sleep, which formerly had been constantly interrupted by the itching.

Before concluding this important mechanical remedy, I wish again to call attention to the fact that massage is valuable in certain skin diseases both for its local and general effect. When it is employed purely as a local agent it is especially advantageous upon certain chronic changes of the skin. It should, however, never be used directly upon an acute inflammatory surface, but can be applied in the early stages of such conditions with benefit above and below the parts in order to afford more area for the returning circulation. It is also well in using massage to follow certain rules and regulations. These requirements I have already partially alluded to in passing, especially the qualities which the manipulator should possess, such as strength, intelligence, and hands adapted to this purpose. Physicians should, therefore, in all cases, at least in the beginning of the employment of the massage, see that the manipulator has these acquirements. The physician should next see that the proper rules and regulations that are necessary in using massage are carried out, by carefully observing its application. He should also note, first, that the part to be treated should be properly exposed, and at perfect ease for the manipulation; secondly, that the hair, should any cover the surface, be well shaved before beginning the operation, otherwise it will interfere more or less with the movements, and often cause considerable irritation; thirdly, that the manipulator should work from the wrists, in which their energy should be spent on the muscles, of the hands and forearms, and not upon those of the upper part of the arms and shoulders. Manipulation performed by this latter procedure will be awkward, unskillful, will quickly tire out the manipulator, and give an unpleasant sensation and motion to the patient.

Fourthly, the movements should be begun moderately and gently, and carefully graduated and increased with both force and frequency according to the exigency of each case and the ability of the patient to bear the manipulation.

Fifthly, the manipulator should exercise great care in stretching the tissues beyond their normal elasticity, which, of course, will vary in each individual, and will vary also according to the extent and length of disease. He should avoid, in particular, stretching the delicate and sensitive integument in opposite directions, more especially in the flexors of the joints, which often tears the skin by this error.

Lastly, the dose of massage should, of course, vary according to the extent of surface treated, and the skill and experience of the manipulator.

Compression.—Compression is another very useful mechanical remedy which should receive more attention from practitioners in the local treatment of skin diseases than is given to it at the present time. It can be applied by means of any substance which will afford rest and support to the affected structures. The means usually employed are muslin, linen, cotton, silk, and gum, used either alone and bound upon the parts, or arranged in the form of bandages, plasters,

or the several materials combined together and woven to the shape of the part to which it is to be applied. The use, in the first place, of the ordinary muslin lightly bound over the surface of many eruptive affections, will not only give rest and support to the parts, but will also exclude them from the air, which often tends to keep up the active irritation. It will likewise retain the application, should any be made, in opposition to the surface, as well as preventing friction and irritation from the clothing, assist in arresting a discharge, should one exist, assist in limiting the disease, and keep at the same time the parts clean. The neglect of this procedure, which is at present too often the case, will keep up the active stimulation, allow the application to run off on the surrounding parts, permit the friction and irritation of the clothing, causing the discharge, should one be present, to increase, the disease to spread, and the parts to become often uncleanly and offensive.

The application of compression with muslin in this simple form, wound or bound around the neck, the axillary region, or the chest, in many of the eruptive affections that involve these regions, is both effective and important additional means in assisting the action of the local medication.

Compression can be applied in the same manner to the breasts should any of the eruptive diseases develop, especially erythema or eczema, and arrest in itself, or assist with medication, in rapidly overcoming the morbid action that would drag on slowly, or often resist the curative action of drugs alone. Again, I know of no one remedy which is so valuable to apply in eczema which involves the folds of the nates and genital regions and the abdomen, particularly in those having considerable adipose tissue to these parts. The use of strips of muslin, or a large abdominal support of muslin, silk, or a combination of the fabrics, made in the form of an apron, lacing either at the sides or posteriorily, will relieve the congestion, arrest the effusion, serve to keep the application on the surface, protect the parts, and prevent friction with the adjoining portions of the integument, and thus limit the disease. Further, the use of compression in this same form in the treatment of obstinate eczema of the scrotum is the best evidence of its value when used, and the effect upon the parts when it is not employed.

The value of muslin, arranged in the form of a support, with mild compression, to the inflamed, thickened and enlarged scrotum, is not only in the support that it affords to the pendulous mass as well as the enlarged blood-vessels, but also the protection and limitation to the spread of the inflammation.

It is, on the contrary, the neglect of its use that often causes the inflamed and œdematous scrotum to irritate the adjacent portions, especially the inner parts of the limbs, which congestion continues to increase with the friction of the two surfaces, until the individual can only move around wtth the greatest difficulty and pain.

Compression, when employed upon the superior and inferior extremities, is usually made with bandages, of muslin, plasters, some woven material, or gum. Bandages may be employed in any one of the usual forms by which the dressing or application can be retained, the parts protected, and equable pressure made upon the surface.

Compression may be applied in the local treatment of erysipelas, and to soothe and protect denuded surfaces of those recovering from eruptive fevers. It is a most important adjuvant in the treatment of herpes, Herpes zoster, urticaria, furuncular, and glandular affections, erythema, and eczema.

In acute eczema, it soothes muscular irritation, tones up the dilated capillaries, and prevents the escape of serosity into the tissues. Again, in subacute eczema it will enable the vessels to remove poured-out products, protect the denuded surface, and exclude the air, which is very stimulating to inflamed and irritable parts, and so moderate diseased action. In chronic eczema of either the superior or inferior extremity, the use of water or oil dressings and local medication combined with systematic pressure with the bandage, will generally afford a most excellent result.

The use of the latter means, it will be seen, causes the dressing to soften up more rapidly the thickened and rough skin, to remove by the constantly graduated pressure infiltration, to equalize the circulation and increase the absorbative action of the medication used upon the surface. This same principle has been utilized with the most beneficial result in the treatment of ulcers of the lower limbs, especially the varicose ulcer. I might add in this connection, that the ordinary muslin bandage will generally answer for all ordinary purposes. I often, however, use (particularly when varicose veins are present) the well-known silk stocking, composed of gum and silk, or gum and cotton together, so as to be quite porous.

While I must acknowledge the great utility of gum by reason of its elasticity and consequent great adaptability in making equable pressure over the whole surface, nevertheless it combines with it other great objectionable features in its use to a diseased integument. The principle of its application as first brought forward by Dr. Henry Martin, of Boston, Mass., was indeed a valuable one, and can be used modified to affected parts of the skin. Gum bandages employed alone have the objectionable feature of preventing evaporation of the normal secretions from the parts, retaining heat and moisture on the surface, thus acting as a poultice, and macerating away the epidermis, which cannot be overcome by applying beneath the gum, muslin and any other substance. The only way this objectionable feature to the use of this valuable agent can be overcome is to have the gum and a silk or cotton material woven together—preferably the latter, for its cheapness. The weaving should be moderately loose, such as in the specimen which I exhibit, so as to have a free porosity over the surface in order to allow a free evaporation of the secretions of the surface to which it is applied.

Compression can likewise be made with plasters, which usually consist of muslin, linen,

or sheepskin, upon which some simple or compound medicinal substance is spread.

They are not adapted for making compression over the general surface, and can be more advantageously used upon certain regions.

Their beneficial influence, cut in strips and applied to the surface, is most strikingly evinced in eczema of the lips.

The mucous surface in this disease is torn open with every movement of the lips, and all the lotions, ointments, and powders will not, at times, soothe the muscular irritation and heal the parts until they are protected and placed at rest. In order to accomplish this purpose, adhesive strips can be made to encircle and allowed to meet posteriorily at the nape of the neck. In this manner the movement of the lips is controlled, the raw surface protected, the irritation soothed, and the disease promptly and effectually arrested.

In removing the adhesive strips in cases of this description, care should always be taken to detach both ends and draw gradually to the centre, otherwise the mucous surface may again be torn open.

While compression can be made with bandages or plasters to the hands and feet for treatment of these persistent cases of chronic fissured eczema, yet their lack of adaptability, their inconvenience in application, the ease with which they fall from the parts, their unsightly appearance and interference with using the members make them very objectionable means to employ. They can only be supplemented in the feet with tightly fitting porous stockings applied over the dressing, or a stocking woven with some gum material in it.

The hands in a like manner can have a cotton or woolen glove, or what I like much better, and which I use, a woolen glove with cotton and gum in the fabric.

The latter form of the glove or any porous material which will fit tightly will retain the application on the surface, allow free evaporation. sooth and protect the parts from irritating substances with which they come in contact, and arrest all muscular irritation that may arise. A woven cotton gum material closely adapted to the parts is equally serviceable in eczema of the popliteal region, the knee, and the ankle. It is requisite always in using compression to apply the substance used so as to support, protect, and place the tissues at rest. Great care, however, should always be exercised in order to prevent making too much pressure on the part and thus arrest the circulation.

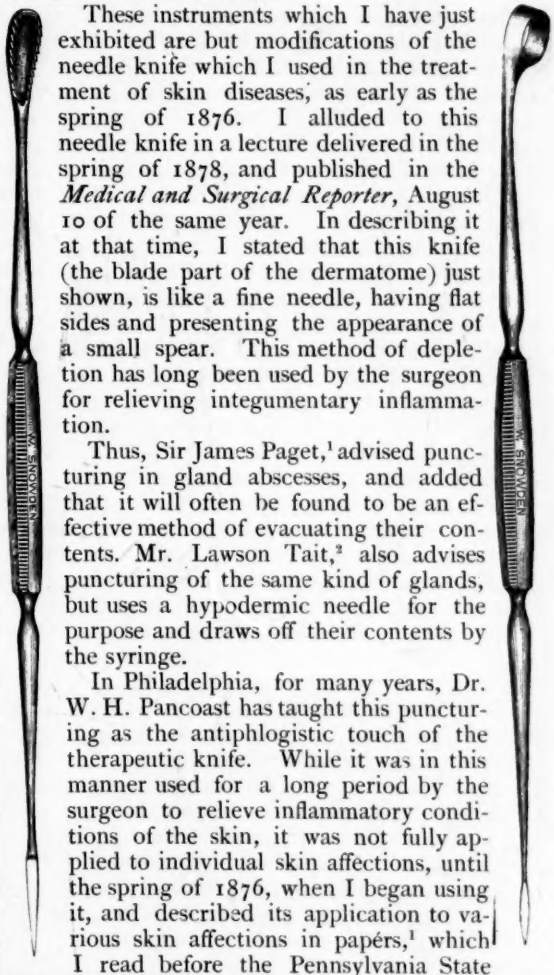
BLOOD-LETTING.—The abstraction of blood, either as a local or general measure, is one of the most powerful antiphlogistic remedies that can be resorted to in the treatment of skin diseases.

It is both a speedy and an efficient means of combating and arresting morbid changes of the integuments. It is especially applicable topically in chronic conditions after medicinal agents have been exhausted in vain attempts to cure many eruptive diseases. Blood may be abstracted either locally from the capillaries or generally from a vein or an artery. In the treatment of cutaneous affections by means of blood-letting, local depletion should be used in the great majority of cases, general blood-letting only being resorted to in very rare instances. Topical blood-letting may be performed by puncturing, scarification and leeching.

PUNCTURING.—Puncturing can be performed either by a bistoury, a tenotome, or a sharp-pointed needle-knife such as I exhibit, and can be named, used in this connection, the dermatome, and is a modification of the needle-knife which I used in the treatment of skin diseases as early as the spring of 1876.

This instrument may contain either a long or a short blade, which I here show in these two sizes for the purpose of convenience and to aid the operator. Upon one end of the dermatome is a spoon, while upon the other instrument on the same distal part is a currett portion which I shall presently refer to.

The first dermatome is about three-quarters of an inch in length, and four lines iu breadth, while the second one is some half an inch in length and two and a half lines in breadth.



These instruments which I have just exhibited are but modifications of the needle knife which I used in the treatment of skin diseases, as early as the spring of 1876. I alluded to this needle knife in a lecture delivered in the spring of 1878, and published in the *Medical and Surgical Reporter*, August 10 of the same year. In describing it at that time, I stated that this knife (the blade part of the dermatome) just shown, is like a fine needle, having flat sides and presenting the appearance of a small spear. This method of depletion has long been used by the surgeon for relieving integumentary inflammation.

Thus, Sir James Paget,[1] advised puncturing in gland abscesses, and added that it will often be found to be an effective method of evacuating their contents. Mr. Lawson Tait,[2] also advises puncturing of the same kind of glands, but uses a hypodermic needle for the purpose and draws off their contents by the syringe.

In Philadelphia, for many years, Dr. W. H. Pancoast has taught this puncturing as the antiphlogistic touch of the therapeutic knife. While it was in this manner used for a long period by the surgeon to relieve inflammatory conditions of the skin, it was not fully applied to individual skin affections, until the spring of 1876, when I began using it, and described its application to various skin affections in papérs,[1] which I read before the Pennsylvania State Medical Society in 1878, and 1879, and before

[1] *Medical Times and Gazette*, vol. I., pg. 15, 1858.
[2] *British Medical Journal*, vol. I., pg. 117, 1871.
See transactions of the Medical Society of the State of Pennsylvania, vols. XI, XII.
American Medical Association, vol. XXX, 1879, 1878-79.

the Section of Practice of Medicine of the American Medical Association in 1879. As I have already stated in one of the papers referred to, I have employed this method of treatment with success in inflammation of the hair follicles of the beard, in acne, in enlargement of the blood-vessels of the face, in chronic eczema, in excess of pigment of the skin, in erysipelas, in scrofulous eruptions, in boils, carbuncles, and in neuroses. Thus, in inflammation of of the hair follicles of the beard, depletion in this way relieves the engorged glands, and drains off altered and vitiated blood. Further puncturing the patches of lupus erythematosus is a valuable means of relieving the hyperæmia present, as well as resulting with good benefit on the cellular infiltration going on in the derma.

A similar effect is produced in acne, by allowing the stagnated blood and the broken-down sebum to freely ooze from the small incisions.

Again, the abstraction of blood, by puncturing the surface, in enlargement of the blood-vessels of the face and in chronic eczema, especially where there is a large quantity of hypertrophied tissue, is an invaluable remedy. In these diseases it relieves the congestion and stagnation of blood in the vessels, equalizes the circulation, and so stimulates the action of the absorbent vessels, that all deposits may be carried off. Puncturing is equally efficacious in arousing the torpid tissues to activity in excess of pigment of the skin, and in allaying the pruritic troubles of old age. I have relieved, and with appropriate internal treatment, have cured some of the worst cases of pruritic difficulty in old persons by the above method of puncturing over all the diseased surface.

This application blunts the irritation of the cutaneous nerves, and relieves the capillary congestion set up by the morbid condition of the part.

After puncturing the surface, it should be allowed to bleed freely by the application of warm or hot water, either one or the other of which I use in all cases of local abstraction of blood. The relief afforded by this method of treating many cutaneous affections, will be best manifested by patients wishing a repetition of the operation, as has been my experience again and again in both dispensary and private practice.

The spoon at the other end of one of the dermatomes will enable the operator to make gentle pressure upon the sides of cut pustules, abscesses, etc., and allow thir contents more readily to escape. The use of this instrument or any sharp pointed knife or needle for puncturing is not open to the objection of the lancet needle, provided with a stop, so as not to penetrate too deeply in the derma, as described by Hebra (*Wein, Med. Wochenschrift,* Jan. 1878,) or to the multiple scarifier invented by Squire. Knives thus made, can only penetrate so far by their arrangement, while the disease may require within a small space, both deep and superficial punctures.

In employing the ordinary, or needle knife for puncturing, on the other hand, the operator can allow the point to penetrate to various depths, according to good judgment and the thickened condition of the integument. For instance, upon part of the diseased patch, erythema may alone exist, while upon another portion either engorged capillaries, papules, tubercles, or excessive hypertrophy may be found.

The former state will necessitate slight puncturing, while the latter will need deep incisions, varying of course, according to the amount of hypertrophy present. In using the dermatome or knife, I usually hold it in the right hand, and rapidly thrust it into the surface, usually from one to six lines in depth, exercising, of course, great care to avoid puncturing important vessels and nerves. While I thus rapidly puncture the surface, and by the quickness of the incision prevent much pain, I also sponge off the surface with warm water, so that it may freely bleed. This latter procedure, already referred to, will prevent the blood from clotting in the incisions, and thus arrest its flow, will free the surface from the poured out blood, which very often obscures the continued operation. The object aimed at by the operation, is to relieve the congestion and stagnation of the blood in the vessels, to enlarge and equalize the circulation and thus awaken the action of the absorbents, in order that all deposits may be carried off.

When the bleeding is profuse, an impression will be made not only upon the part, but also upon the system at large. The operation may be repeated every second or third day, or according to the exigencies of the case.

SCARIFICATION.—Scarification, the next best means of abstracting blood locally, is not as frequently employed in the treatment of skin diseases as puncturing. It is nevertheless very useful in dividing engorged blood-vessels in an inflamed surface in certain cutaneous affections. It can be performed with either a lancet, scalpel or bistoury, and the incisions should be made in parallel lines and should, if possible, correspond with the long axis of the parts. Incisions passed in this manner, lightly but rapidly over the congested and inflamed surface, divide the engorged vessels in the superficial part of the derma, and promptly permit their contents to escape.

The length, depth and number of incisions must of course vary according to the requirements in each case; care also must be necessary that large veins are not divided.

Scarification is employed chiefly to relieve both irritable and indolent ulcers, especially of the extremities.

It is an exceedingly valuable method, which I have long used in ulcerating lupus, in connection with scraping and local medication.

Scarification is also efficacious in relieving the engorgement and preventing gangrene in phlegmonous erysipelas. The operation may be repeated every second or third day, but the bleeding should always be promoted by the free use of warm water. It may also be well to add in this connection, that in some cases the depletion that may supervene may be very great, giving rise to marked systemic effect, even leading to syncope. The operator should therefore exercise great care in making the incisions, so as to divide only the superficial capillaries, unless he aims to have a systemic as well as a local impression, in which event deep cuts are advisable.

LEECHING.—Leeching is another mode of topical bleeding that may be used in some cutaneous eruptions. It is, however, much inferior and much less applicable than puncturing and scarification. It can be resorted to when it occasionally happens that some individuals have so much fear of being cut with either a knife or needle, in which event the European or American leech can be substituted for either the puncturing or scarification. Again, leeching may be used in place of the latter two methods by means of an instrument called the artificial leech, which consists of a small scarificator, a cup and an exhausting syringe. Leeching is applicable to the same class of skin affections which have been named in puncturing. It is an especially effective local method of treating erysipelas and all glandular enlargements.

VENESECTION.—Venesection (or opening one of the larger veins, generally at the bend of the arm, and allowing the blood to freely flow until followed with a systemic impression) has brought, in some instances in my hands, most decided relief in certain skin diseases. Generally bleeding should only be resorted to in those in which the individual is strong, robust, and shows every evidence of a plethoric state of the system. In such subjects speedy and efficient good will often follow general blood-letting. Thus I have had the most happy effect result from general bleeding in some cases of acute eczema, in which the local inflammatory action and the general irritation of the system both subsided. Again, in some cases of general psoriasis, I believe I have seen most excellent results follow bleeding. Venesection, used in certain skin affections, weakens the action of the heart and lessens as a result the circulation, and consequently lessens the temperature and congestion of the integument. It likewise lessens the irritability of the nervous system, renders the blood more healthy, and assists both locally and constitutionally in promoting the action of other remedies.

INCISIONS are employed upon the integument with the knife, whether the bistoury or scalpel, for the purpose of exposing, dividing, or removing the parts. One of the chief values of the incisions is to expose tumors in the skin, which can often afterwards be removed by other means, which I shall presently refer to. It is in this way we often deal with sebaceous cysts and lymphatic enlargements. Incisions may be employed for the purpose of dividing the blood vessels, and thus abstracting blood from a part, as already alluded to, under scarification, or cut off an abnormal and often excessive supply of blood to a portion of the skin. It is thus that the latter procedure is often resorted to in arresting the developments of feruncular affections, warty growths and the enlargement of the blood vessels in rosacea. It is a method that has been advantageously used, especially by Nussbaum, to arrest and assist in curing obstinate ulcers. This local means of treating old ulcers is particularly prompt and satisfactory, the patients being narcotized, a circumcision, as recommended by Nussbaum, is made around the ulcer, and half an inch beyond the circumference or outer rim of the sore the incision must be of sufficient depth to penetrate to the facia." A large number of blood-vessels are thus severed, often causing considerable hæmorrhage, which can be arrested by inserting into the incision a piece of lint, and tightly compressing the ulcer with a bandage.

The strip of lint thus inserted not only arrests the bleeding, but also prevents the cut from healing up during the night. On the following day the lint and bandage can be removed and the ulcer dressed. Ulcers treated by incisions in this way have thus cut off from them the excessive supply of blood that produces so much unhealthy pus, which now lessens and becomes laudable. The supply of blood having decreased, there is consequent less exudation; cell-formation is now permitted to go on, and the ulcer gradually decreases in size until it entirely disappears. A free incision into abscesses, suppurating glands and through sinuses will not only evacuate and drain off the pent-up material, but will also give the diseased integument an opportunity of healing properly from the bottom, and thus avoiding unsightly scars.

In the event that any unsightly scars should arise from either neglecting the above procedure, or from other inflammatory affections of the skin, they may be removed or improved by a subcutaneous incision, as proposed by Mr. Wm. Adams.[1]

Incisions are likewise made into local inflammatory patches, as in sycosis, in erysipelas, and in carbuncles, to relieve the tension of the parts, to divide some of the sensitive nerves, as well as to afford a free exit to the pent-up inflammatory products. Incisions may be resorted to for the removal of a portion of the integument, they are not necessarily followed, however, by severing the normal or abnormal tissue from the part, unless the cut, or cuts, are made expressly for that purpose. When they are made for cutting off the tissue it constitutes more properly, another mechanical procedure which I shall now refer to.

EXCISION.—Excision consists in the removal of a part, either by incision of the knife, by ligature, or by crushing. Warts, horns, pigmentary and hairy moles are often eradicated from various portions of the integument by excision with the knife. Excision by the knife is also largely used for extirpation of many of both the benign and malignant tumors of the skin.

Callosities, as well as curved, twisted, and excessive growth of the nails, are often only manageable by ex-

[1] *British Medical Journal*, vol. 1, p. 534. 1876.

cision of a certain amount of the offending material by means of the knife. Excision may be resorted to by the same means for removing chancre, and thus lessening the local spot of irritation as well as decreasing the power of the infecting patch.

In case that children or adults, more particularly the latter, have several superficial dense indolent glands, which have resisted and been intractable to all ordinary treatment, excision will not only often prevent the neighboring glands from being affected, but will also avoid the evil effects of prolonged suppuration and its ill consequences that may follow.

Disfiguring scars, particularly when there is a change of color in the skin, the surface is rough or irregular, often attended with the formation of prominent bars and ridges of scar tissue may be conveniently and advantageously excised, leaving usually a simple but clean scar, where formerly existed an unsightly deformity.

Excision may likewise be performed through the agency of any substance that can sever the tissues, either by a rapid or slow process, as by the galvanic or thermo cautery, by the ligature and by crushing.

The galvanic cautery, which is the generally preferred method of excision by the cautery, is usually performed with a loop of platinum wire connected to a suitable galvanic battery, and is both a rapid, bloodless and powerful mechanical means of removing many of the hypertrophic growths of the skin, especially horns and warts.

It is particularly applicable to eradicate venereal warts and pedunculated tumors of the skin. The ligature, whether it be constructed of silk, flax, gum, wire or animal tissue, can be advantageously employed, only, either by the fingers or by means of a needle, in excising by slowly strangulating all the included strictures. It is a bloodless operation, often being the very best mode of removing nevoid formation and vascular warts from certain regions of the body.

CRUSHING is another very excellent mechanical means of excising parts, as proposed by Chassaignac, of Paris, which, although less rapid than the knife, is still greater than with the ligature. This crushing instrument, the ecraseur, consists mainly of an articulated chain or wire which embraces in its loop, once applied, the tissue, which is gradually but effectually crushed by slowly turning the handle of the ecraseur to which the chain is attached. It not only possesses the combined advantages of the knife and the ligature in excising many hypertrophic growths of the skin, but it also leaves a small wound, which is usually attended with slight inflammation and rapid healing.

ENUCLEATION.—Enucleation is a form of avulsion, and consists in rapidly peeling out diseased structures either with the fingers or some hard substance, generally the handle of the knife or forceps. It is a method often employed advantageously after the skin and capsule has been divided over morbid growths. It is in this way that enlarged lymphatic glands, often deeply situated in the neck, are removed with perfect safety, and the operator running no risk of wounding any of the important blood-vessels in that region. It is also, perhaps, the easiest and most ready means of extirpating sebaceous cysts.

SCOOPING.—Scooping is a species of enucleation, now much in vogue, for removing with a smooth or sharp spoon broken-down products and pent-up secretions. It is an invaluable method of emptying cutaneous abscesses, sinuses, and certain kinds of strumous glands. Dr. Clifford Abbott, in a paper read at the last meeting of the International Medical Congress, states that the result of such operative procedure has at least equalled his own and Mr. Teale's most sanguine hopes. Dr. Von Lesser, in an article on the treatment of strumous glands, in the *Central f. Chirurg.*, also uses the same procedure. He first punctures into the gland, after which he introduces through this wound a small sharp spoon, and scrapes the interior of the gland, by which he claims the disease is cut short, ulterior dangers are avoided, and unsightly scars prevented. Scooping out of strumous glands by a Volkmann's spoon is also advised and highly recommended during certain stages of their development, by Dr. Frederick Treves. In resorting to the spoon, it should be upon those cases which have usually resisted treatment, and in which the glands are closely adherent to the skin. Further, all evidence of active inflammation should be absent, and the glands themselves should either be becoming soft or be softened. Glands in such a condition can either be attacked through sinuses, should they exist, or by puncturing or incising the integument and then passing in the spoon and scooping out the soft, cheesy portions, which readily yield and come away. A material is thus rapidly removed which would require by nature's process a long and tedious time to eliminate, attended with general derangement of the health, in addition to the local disfigurement that often follows. If, on the other hand, the spoon should be employed on glands that are freely moveable under the skin, the products might escape from the glands into the loose cellular tissue that may be opened up, giving rise to the formation of abscesses, sinuses, and their evil consequences.[1]

SCRAPING.—Scraping, although a very old mechanical procedure of treating some cutaneous affections, unfortunately is not receiving at the present time the consideration and attention to which it is intrinsically entitled. It is but a modification of scooping, just considered, and can be used by means of the spoon, providing a little more force is applied.

Scraping can be performed by means of any hard substance employed with a certain amount of force, to bring away any material from or within the integument.

It is usually employed with the side, back or handle of a knife, but often the forceps, scissors and groove director are brought into requisition for the operation, The modern instruments, however, which are especially designed for scraping, are the spoon, smooth, or a little roughened, and a round or oval instrument something like a spoon, having a hole through its centre to permit all substances to

1. A full account of this form of treatment will be found in Scrofula and Its Gland Diseases. By Frederick Treves, F.R.C.S., London, Eng., 1882; p. 191.

escape through, with the edges moderately sharp, called the curette.

The object of this instrument is to tear and break down the parts to which it is applied, generally diseased tissue, or abnormal products. The purpose of this method is to rid the surface, or parts within the integuments, as much as possible by means of this mechanical procedure, of morbid products, thus facilitating, as well as assisting, local remedies to act more rapidly and bring about a cure.

Scraping, as has already been stated, can be accomplished by any hard substance, and probably not any one is better than a sharp sea-shell, which has been used and handed down from the early times in certain parts of Egypt. Thus Dr. Josiah Williams, in an article published in the *British Medical Journal* on medical notes of travel in Egypt, speaks in this manner of the native treatment of syphilis in young girls:

"Close to the town (Souakin) in the Red Sea, is a little island, called originally Sana Gin, and from which the town takes its name.

"The girl is taken across to this island by six women; she is then laid naked on her back—on each arm and each leg sits a woman, another on her chest. The operator, another woman, provided with a sharp sea-shell, scrapes away in the vagina until she is satisfied that all diseased parts are removed, and then, utterly regardless of the shrieks of the girl, gets a handful of sand from the sea, and rubs that in.

"The disease is then supposed to be cured by this rather rough operation."

This primitive method of scraping away diseased tissue has been used from the most remote times, more particularly along the sea-board portions of various countries by the natives. It makes very little difference, however, whether the morbid tissue be scraped away either by one or the other ways—just so the offending portion, or as much as can be, is removed as well as possible from and among the healthy tissue.

The application of scraping is, perhaps, no better illustrated upon any class of cutaneous affections than upon strumous, broken-down lymphatic glands. In very many of these cases it will require more than the ordinary scooping out, the parts within as well as without being covered with exuberant granulations, disfiguring sinuses filled with filthy discharges, all of which must be eradicated by thoroughly scraping off and out of the tissue these abnormal products, to save the system from being poisoned, and to bring about some local beneficial effect.

Scraping is equally efficacious in assisting old, indolent abscesses, and bubos complicated with the development of unhealthy granulation. It removes from the parts an offending material, which nature is often unable to overcome, and places them in a most suitable state for other applications.

In epithelioma, in old ulcers, and in ulcerating lupus, scraping is often an essential, as well as a requisite, part of the treatment.

In warts, horns, and callosities, it is usually necessary to scrape the hypertrophies well before applying local medication, providing it is the aim to arrest these affections by this method of treatment.

In some old and exceedingly chronic cases of circumscribed psoriasis or eczema, where the surface is covered with thickened scales or hard and unyielding crusts, no means will act half as advantageously as scraping off these products and afterwards medicating the surface beneath by a seton. A seton in the form of a thread of silk is occasionally used for the treatment of gland tumors. The measures already enumerated, or that to be described will be found however, in the majority of cases, far more preferable. The employment of the seton in cutaneous affections, therefore, is very limited, being applicable only in particular to indurated glands in which the object is to effect their elimination by suppuration. In the event that it is decided to use a seton, a silk thread should be selected for that purpose, and passed entirely through the long axis of the gland. This mode of treatment will within a few days cause the gland to take on active inflammation, which will terminate in suppuration in from three to four weeks.

CAUTERIZATION.—Cauterization can be performed, in addition to the use of caustic medicinal remedies, by heating a metallic substance to a high degree of temperature, or by means of the solar rays and a lens, and thus accomplish the same result through the burning-glass. The mechanical cautery, as usually employed, consists simply of variously shaped pieces of iron fixed in wooden handles, although needles, pins, and other metallic substances can be heated in the ordinary fire, spirit lamp, or brazier to either a white or dull red heat and rapidly applied to the affected integument. While the measures just enumerated are the most commonly employed, yet it is often very difficult to maintain and control them according to the degree of temperature required by the operator. For instance, in one case a white heat may be desired, while in another a dull red or black heat may be required; consequently the effects of the application of these different degrees of temperature will greatly vary. Another and more efficient method of applying heat has been made in the form of the galvano and thermo-cautery, means which will enable the operator to have the temperature perfectly under his control at all times. The application of the actual cautery in some of the more common cutaneous affections has proved of inestimable value, and in many diseases has superseded the use of local medicinal substances. Thus its use in feruncular affections has been productive of the most happy results. Especially has it been efficacious used, preferably in the form of Pagnelin's thermo-cautery, in the treatment of carbuncle. In this affection, particularly where there is a tendency to great exhaustion from excessive and protracted suppuration, the thorough application of the actual cautery will lessen the liability to such a condition, will quickly promote a separation of the dead tissue, and will prevent, as has been shown by Vermeuil, Post, Connor, and particularly by Langenbeck, the development of pyæmia.

Decidedly good results of the actual cautery are also well seen in its application to old ulcers, exuberant granulations of the skin, in epithelioma and in ulcera-

ting lupus, which may either limit these affections and lessen suppuration, or be followed by the formation of a healthy granulating surface, which soon cicatrizes, with less deformity in the shape of scarring than by almost any other method of treatment.

It can be used advantageously in angioma, nævus chancroids, elephantiasis arabum, in destroying the vessels and hypertrophied tissue in the second and third stages of rosacea, and for the removal of horns and warts. Dr. Cellier in a recent issue of the *Journal de Med. et de Chir. Pratiques*, recommends the following novel means of cauterization for the removal of warts. An ordinary pin is passed through the base of the wart, the skin protected, after which the head of the pin is heated in the flame of a candle, causing the hypertrophic growth to become white, fissured, and to come away in a few minutes on the point of the pin.

Dr. Cellier further adds, that it is only necessary to remove one wart, though there may be a dozen present on the part, all the others will disappear without treatment. Pins or a shoemaker's awl thrust into nævus at a black heat, as was suggested in a clinical lecture by Dr. Jas. L. Little (*Medical News*, May, 1883), will often effect a cure and leave but a slight cicatrix. It is probable that one of the very best curative measures that can be used for scrofulous glands is in the form of cautery puncture. The thermo-cautery points employed by puncturing the glands with it in this manner has been long used with great success in France. It has been equally efficacious in England, and especially practiced and described by Dr. Frederick Treves. It is a method that is applicable to any enlarged gland, preferably those which are adherent. It is necessary in making this application to fix any of the moveable glands by seizing them between the fingers, after which a medium cautery point, having the thickness of either a No. 7 or 9 American bougie (the size of the point, of course, varying according to the dimensions of the gland enlargement) is passed rapidly through the skin into the gland and twisted around within its substance, after which it is withdrawn. The ordinary dressing follows, unless pus or a soft cheesy material escapes, in which event a poultice applied will be very advantageous. If the gland contains no pus or soft cheesy material, a slight acute inflammatory action sets up, attended with a little enlargement and discharge. These effects quickly subside, owing to a healthier action which has been established by the operation. The gland slowly shrinks and a permanent cure soon follows.

If pus and broken-down products are present, the opening thus made will give them a free exit, the suppuration gradually lessens, and the part heals up within a favorable period of time.

In circumscribed, thickened and infiltrated spots of eczema, which do not yield to the ordinary treatment, the application of the actual cautery has been followed, in some typical cases under my care, by complete recovery.

In conclusion, let me add that these mechanical remedies, just enumerated, may be used separately or combined, or they may be employed in conjunction with constitutional treatment, and with the assistance of certain appropriate local medication. In some cases they can be used alone, at the very beginning of certain cutaneous affections, with decided curative results. In others they will often be found to be invaluable adjuncts in arresting some very obstinate cutaneous affections. In still other instances they are the only means that can be resorted to after medicinal remedies have utterly failed.

It is this latter class of intractable chronic skin diseases to which, in closing, I wish especially to commend the mechanical remedies as being very often curative. It is necessary, however, to state that if one or the other of the remedies that have been named be selected and employed, it should be done with good judgment, skill, and a thorough knowledge of the subject under consideration. For example, in employing massage the operator should have a certain knowledge of physiology, anatomy, and be thoroughly versed upon medical rubbing, otherwise more harm may be done than good accomplished.

Again, in resorting to blood-letting, compression, cauterization, etc., sound judgment, combined with great care both before, during, and after such procedure, is always essential and requisite to accomplish in a satisfactory manner the desired result. If, therefore, these mechanical means be suitably handled by physicians, they will be found to be at all times powerful remedies for many of the so-called incurable skin diseases.

THE ALIMENTARY CANAL IN BRONCHITIS AND PHTHISIS.

BY THOMAS N. REYNOLDS, M.D., DETROIT, MICH.

[Read to the Section on Practice of Medicine, Materia Medica, etc., June, 1883.]

An abnormal condition of the alimentary canal and necessarily of the portal and lacteal systems proceeding from it, is often the predisposing cause of both acute and chronic affections throughout all parts of the entire respiratory apparatus.

But speaking here only of bronchitis and phthisis, and first of bronchitis, we may say that acute tracheo-bronchitis is frequently produced by excess in the dietary, with proportionately incomplete waste elimination. Of course there is generally an exciting factor, most commonly chilling of the surface, but that relating to ingestion and elimination is in the mass of cases to which we refer—the great underlying principal cause, which only needed some slight provocation to produce an attack. An unusual general fullness of the blood-vessels renders the body more susceptible to local congestions; and when, added to the fullness there is the sepsis of retained and reabsorbed tissue waste, congestions become true inflammations, which are purulent in character, largely in proportion to the amount of retained excrementitious matter.

In young and otherwise healthy subjects of acute tracheo-bronchitis, this condition of body is usually the principal obstacle to a speedy recovery.

With this fact in mind, the treatment should be prompt evacuation of the bowels, and restriction of the diet to a light liquid form, and quiet and an equably warm surface should be maintained. If severe, the patient should be ordered either to bed or a comfortably warm room, and in any case he should be clothed a little extra and warned against becoming chilled. It is quite as important to protect the lower extremities from cold as it is to protect the chest, and not less important during an attack to protect the wrists and arms.

The cathartic removes obstruction and promotes elimination from the intestinal mucous surface, and abundant warm drinks do the same from the great secreting structures of the kidneys and skin. The withdrawal of solid food soon brings about sufficient depletion of blood, and the withdrawal of fats and nitrogenous substances at the same time, lessens the excess of animal heat, produced probably more largely by the assimilation and disassimilation of these two elements of vital force and tissue construction, than by that of any other elements of food supply.

Besides the depurating effect of the cathartic and the hot drink diet, a revulsion of nervous energy to the bowels, kidneys and skin takes place from the excited vessels of the inflamed tracheo-bronchial mucous membrane, which cannot usually be excelled, and probably not equalled, by aconite or veratrum viride or any other medical material.

This revulsion of nervous energy and vascular excitement will also be permanent, if warmth of the surface be likewise observed.

This should be maintained by means of extra clothing or sitting near the fire, rather than by heating too much the atmosphere of the room.

If these features in the management are really enforced, no other treatment is necessary in uncomplicated, acute tracheo-bronchitis.

Astringent, stimulant, and saccharine cough mixtures commonly used, have neither theoretically nor practically any beneficial influence over the affection. On the contrary, they tend to prolong it by a deleterious action on the stomach, bowels and liver, and in some degree also on the kidneys and skin.

If medicines be resorted to at all in the first stage, the best, both in theory and practice, are full doses of morphine and quinine, either separately or combined, or small frequent doses of aconite or veratrum viride. But these do not usually equal, either in immediate or ultimate results, the treatment without special drugs, which we have previously outlined.

Whatever be the treatment, it is a great desideratum to cut the inflammation short, for besides the tendency to extend to the capillary tubes, which renders it immediately dangerous to life as well as more damaging to lung tissue proper, an ordinary bronchitis, when prolonged and purulent, often necroses and thickens irreparably parts of the mucous membrane, and produces fibroid thickening of the contiguous peribronchial connective tissue, and always, especially when severe, renders the patient much more susceptible to a succeeding and probably worse attack. Every succeeding attack adds an increment of damage and functional impairment to the bronchial and pulmonary tissue, and the patient then has more or less wheezing, asthma, emphysema, perceptibly impaired elasticity in breathing, with a catarrhal and fibroid phthisis pulmonalis always impending, and this is chronic bronchitis, which we try so especially to avoid when treating the acute.

If derangement of the primæ and secundar viar is causative of acute in the healthy, it is more so in those previously affected, especially if there be loss in the bronchial mucous membrane. There is in the chronic form the same necessity for harmony between the food supply and assimilation, and disassimilation and elimination.

But an older person bears excess in the dietary much worse than a younger, for his capacity is not so good for extraordinary efforts in constructive and destructive tissue metamorphosis, or for performing the more purely chemical changes.

So any unusual high living, without sufficient accompanying exercise, will invariably increase the chronic bronchitic man's cough, and if his diet be not properly regulated and the emunctories slightly stimulated, he will be likely soon to have increased expectoration, or a pronounced attack of the acute.

The different so-called expectorants rarely do any special service, and many do very serious harm in chronic bronchitis by interfering with both gastro-intestinal and hepatic digestion. But if the secretion be abundant and purulent, gr. ii or iii of quinine four or five times a day, proves generally very beneficial; lessening the secretion of pus, without impairing digestion, and improving the tone of the vascular system.

As to diet, it is not wise to press stimulants and strong nourishment, when not readily and perfectly digested.

As to clothing, while it should be sufficient in the elderly bronchitic patient, it should not be excessive. A common mistake is that of wearing too much on the chest. I have seen a few cases of striking improvement in patients going about, from removing two or three extra undershirts and a chamois leather lung protector.

Physical exercise involving free use of the lungs restores wonderfully their normal elasticity, after an attack which has left thickening of the peri-bronchial connective tissue. It dissipates the thickening and adhesions, just as continued free motion dissipates the thickening and adhesions from around a recently inflamed joint. This is important in the lung for other than immediate comfort in breathing; for if there remain no hyperplasia of connective tissue there can follow from it no subsequent sclerosis and degeneration—in other words, no fibroid phthisis.

To prevent catarrhal phthisis proper is, nearly always, to prevent too frequent and prolonged attacks of suppurative bronchitis.

To treat properly catarrhal or advanced fibroid phthisis, either separately or combined, is to treat it as one would an inaccessible suppurating part anywhere else, not by cod-liver oil or any other supposed specific alone, or by specifics at all, if they nauseate, or in any way interrupt or interfere with normal di-

gestion. But a frequent and sometimes liberal use of quinine is immensely useful in these suppurating lesions, reducing body heat and the secretion of pus, and acting otherwise as mentioned in speaking of suppurative bronchitis.

If early in its course, the patient should cultivate an out-door life, with plenty of physical exertion, and wholesome mental occupation. Under this *régime*, digestion will soon become perfect, tissue building will go on properly, the lung cavities will become more firmly circumscribed, and will often cease to suppurate, rendering recovery complete.

One is often asked what is the best region to go to, but probably any region free from malaria or other unwholesome emanations, with a temperature permitting an almost constant out-door life, with exercise, will answer the purpose.

I shall not refer to tubercular phthisis, further than to say that it has sometimes also seemed to me to be excited or produced, in those of tubercular family history, by a profuse and prolonged bronchitis, which, in turn, followed upon a prolonged constipated habit and general defective elimination, caused again, in its turn, by inactive in-door life.

In dyspepsia with constipation and septic fermentation of the ingesta, it would seem not impossible that the septic products which result, may be carried by the portal and lacteal vessels direct to the pulmonary arterioles and capillaries, and be there sometimes auxiliary in causing bronchitis and phthisis, in any or all of their forms.

MEDICAL PROGRESS.

NEW REASONS FOR THE USE OF WOMAN'S MILK IN NURSING.—M. Béchamp has discovered for us a new element in woman's milk, by which it differs essentially from the milk of other animals, not only by its density, quantity of sugar, of fats, of salts, and of water, but by the presence of a special ferment which modifies considerably its digestive qualities. This ferment is called zymase by M. Béchamp, and its history classes it among the microzymas, which he considers as integral parts of the normal tissues of the organism. It is these microzymas which, becoming diseased, are converted into bacteria. This zymase has the property of converting starch into sugar. In cow's milk, besides the caseine, there are two distinct albuminoids, one of which is soluble in water after being precipitated by alcohol—this is galactozmase which is capable of dissolving the starch of farinaceous substances, without converting it into sugar. The zymase of woman's milk has the saccharifying property. To obtain it, the woman's milk is slightly acidulated by acetic acid ; then is added at least three times its volume of alcohol, 90 centesi. The albuminous precipitate, which is very abundant, is received on a filter, washed by weaker alcohol to remove the sugar of milk, the fat removed by ether, then treated with distilled water. After the lapse of several hours it is again filtered, and the solution obtained possesses in a high degree the property of dissolving and converting into sugar the starch of farinaceous substances. To study this new zymase properly, Béchamp used 500 cubic centimetres, but to verify the fact 20 to 30 cubic centimetres will be sufficient, and in using 10 cubic centimetres of water to dissolve the precipitate, the solution should render fluid and convert into sugar 20 to 30 cubic centimetres of starch to the twenty-fifth part of the farinaceous substance used. To avoid all error, it is well to wash the breast with water slightly mixed with creosote, and to receive the milk in vessels washed by the same. The milk tested has been taken from the breast just before, just after and during the nursing by the child, and the results are always the same.

The important conclusions so reached are, that no milk from other animals can replace the woman's milk; they are very different in character, and furnish a strong reason to the practitioner for encouraging nursing by the mother or by some other woman. Again, this explains the benefit of still nursing from the breast after the infant has begun, at 4 or 5 months, to use farinaceous substances, which has seemed to some to be superfluous, or even dangerous. According to experiments, a nursing of 50 grammes gives enough zymase to make 40 centigrammes of glucose, which, added to the ferments of the saliva and of the pancreatic juice, gives the child at the breast at least three products of secretion capable of transforming starch into sugar, and assisting in its absorption. We are warranted, then, in concluding as follows:

1. The woman's milk contains ferment capable of saccharifying crude or cooked starch.
2. The special nature of woman's milk, due to the presence of zymase, renders it preferable to all others.
3. An equivalent for woman's milk cannot be found in the milk of the cow, the bitch, or the ass.
4. The milk of domestic animals, pure or mixed, may be taken when woman's milk cannot be had, but it is not of the same value.
5. We should, as far as possible, nourish infants at the breast in preference to all other modes of nursing or artificial feeding.
6. When children are old enough to partake of farinaceous food, woman's milk is still useful in converting the starch into sugar.—BONCHUT, *Paris Medical*, June 2, 1882.

THE SALIVARY DIGESTION OF STARCH BY INFANTS.—This writer used for his purpose corn-starch previously boiled, cooled into a paste, put into little linen bags, and given to infants to suck for two minutes at a time. Pary's test was then used ; the corn-starch paste exhibited before the experiment bore no evidence of sugar change. The linen was thoroughly boiled without discoloration of the solution. The bags with their contents were in each case thrown into a test tube. These observations are given in tabular form, in twenty-one cases of children varying in age from six days to seventeen months. The sugar change was noted in all but three ; one of these was a babe six days old (fed on breast milk), whilst in another babe seven days old a marked reaction was observed (also fed on breast milk). Five of

these cases, relatively 4 months, 5 months, 8 months, 13 months and 17 months, fed on corn starch and crackers, were recorded as follows: First, well marked; second, slight; third, breast and crackers marked; fourth, well marked; fifth, condensed milk, none. The writer makes the following conclusions:

The saliva of some infants possesses the property of converting starch into glucose, regardless of age. When such a condition is found to exist, a small quantity of well-prepared farinaceous food is valuable as an element in the diet, incorporated with mixed cow's milk. We would add, in view of the recent experiments by Béchamp, that the food be better mixed with the breast milk of the nurse.—KEATING, *Boston Medical and Surgical Journal*, July 12, 1883.

THE FÆCES OF STARCH-FED INFANTS.—This is a record of the examination of the fæces in 24 cases of children varying in age from 45 days to eighteen months, and fed on condensed milk and crackers. The presence of starch was exceptional, and apparently in no degree dependent upon the age of the child. The stools of eighteen out of the twenty-four contained either no starch or but a trace, that is, no more than is frequent in the evacuations of a healthy adult upon a mixed diet. Six of these specimens were from children of three months or less, the youngest being but forty-five days old. In many cases the broken and empty cellulose envelopes of the starch granules were clearly discernible.

The six infants in whose evacuations a noteworthy amount of starch was present, were aged respectively three, four, ten, thirteen, fourteen and seventeen months. The eldest two were in very bad health. The facts presented, appear to justify the following conclusions:

First, that many infants of under three months can digest starchy foods.

Second, that the individual variations in this regard are so numerous that no broad and general statement can be made as to the period at which infants begin to digest starches; and

Third, that the physician can be absolutely certain that a farinaceous ingredient in the diet of a young infant is beneficial only by an examination of the dejecta under such diet.

This paper was read June 6, 1883, before the College of Physicians of Philadelphia, and in the discussion which followed, both Drs. Keating and Randolph mentioned, as of interest in this connection, cases where fat was found in the fæces, after inunctions of cod-liver oil had been used.—DR. N. A. RANDOLPH, —*Boston Medical and Surgical Journal*, July 19.

SPINA BIFIDA SUCCESSFULLY TREATED AFTER THE ROBSON METHOD.—Dr. R. I. Hayes, of Rochester, N. Y., reports a case in the *Medical Record*, where he followed the new method laid down by Mr. Robson, of Leeds, England, in the *British Medical Journal*. The patient was a female of 9½ weeks, the tumor in the lower dorsal region was more than twice the size of a hen's egg; fluctuation was felt readily with one hand on the tumor and the other over the anterior fontanelle. Aspiration was used first, five to six fluid drachms being all that could be obtained; the tumor was then dissected, and a double sac found, the outer sac not communicating with the spinal canal, but being the source of the fluid aspirated. The true sac was then aspirated. On the introduction of the needle, the patient collapsed, was restored, and ten fluid drachms removed and the sac opened; the superfluous portion of the membranes were then removed, and union formed by six interrupted catgut sutures. Some twenty small grafts of fresh periosteum from a rabbit were introduced on the surface of the membranes, and the external flaps, fatty tissue and all, trimmed and closed. Union occurred throughout the wound by first intention, at all but one joint. Here a sinus existed, through which clear serous fluid drained very freely—several fluid ounces daily for four or five days, then more and more sparingly, until the tenth day, when the sinus at once closed. Eleven weeks after the operation, the child is remarkably bright, the tumor is reduced one-half in size, of the feel of fatty tissue, not especially sensitive, and reasonable pressure fails to produce any effect. Dr. Hayes makes two points: 1st, care in running a portion of the fluid before free incision as a guide to the degree of tolerance, and 2d, careful maintenance of such a position in the patient during and for some time after the operation, as will best favor the retention by gravitation of the largest amount possible of the cerebro-spinal fluid.

ANGULAR ANCHYLOSIS OF FEMUR AT THE HIP JOINT, TREATED BY SUBCUTANEOUS DIVISION OF THE SHAFT AT THE TROCHANTER.—Dr. Stephen Smith gives a full and very interesting report with illustrations, in the *Medical Record*, of successful treatment of this affection. He used the fenestrated canula saw of Dr. Geo. F. Shrady, which consists of a trocar, fenestrated canula, and a staff with handle and blunt extremity. A portion of this staff at a short distance from the extremity is flattened, one edge being made into a knife-blade, and the other edge being provided with saw-teeth. The staff replaces the trocar, and then the saw or knife can be worked to and fro within the canula, or fixed as one piece by a thread-screw. The soft parts are protected from injury no matter in which way the instrument may be worked—the saw and knife being guarded on all sides except on the limited cutting edge. In this case a division was made at the small trochanter, and as non-union was liable to occur from displacement, a half tenon and mortise was cut, causing the fragments to lock. The operation was successful, but while adjusting the plaster-of-Paris dressing, the lower fragment of the femur slipped twice out of its interlocked position, but was replaced and remained satisfactorily. About a week after the operation, an abscess formed, which was superficial, and extended nearly to the knee, but soon closed. The patient now walks without any support, erect as she would with a healthy limb, and with but a slight halt.

MODERN CIRCUMCISION.—The official circular of instructions, Jan. 10, 1883, says the *Med. Press and Circular*, issued to the Israelitish communities of

Baden, sets forth that the only persons who are to be permitted for the future to perform the rite of circumcision, shall be such as shall be authorized by the Jewish Supreme Council. 1. The knife must he freshly polished and the forceps properly purified. 8. The quadrangular pillow employed, as well as the sausage-shaped ring, must be frequently renewed, and before every circumcision, covered with new gutta-percha tissue or new sarsanet. 7. The operator, immediately before the operation, must carefully wash his hands with soap, and cleanse the nails with a good hair brush, taking peculiar care that no dirt be allowed to remain under the nails, more especially under those of the thumbs. The hands must in addition be washed in a 5 per cent. solution of carbolic acid. The operator is no longer to suck the wound, nor irrigate it with wine ejected out of the mouth. Instead of this the blood is to be removed by gently wiping the wound with pledgets of purified boracic lint dipped in wine. The wound is to be closed by being enveloped in a strip of 10 per cent. boracic lint. The further removal of fluids and blood clots is only to be effected by means of a new sponge previously soaked in a 5 per cent. carbolized solution or by salicylized lint. A medical man must be immediately called in if hæmorrhage be considerable, and cannot be at once stopped, or if it be from an artery. Such authorized persons are forbidden to perform the rite, if suffering from any infectious disease, and until complete recovery has taken place.

A DOCTOR'S MODEL HOUSE.—Really, our English cousins are becoming too much of a puzzle to us. Here we have just established the fashion, which has become wide-spread, of houses with open fire-places and windows that are easy of access and have facilities for the free entrance of fresh air, in accordance with English prejudices. And now we find the *Lancet*, under the above heading, congratulating Dr. Hogg, of Bedford Park, Chiswick, on his successful attempt to solve the vexed question of house-heating and ventilating, by building a house in the Queen Anne style, where no window can open, and where there is no fire-place except in the kitchen.

He has placed a large passage under his hall for an air-chamber that can be cooled in summer and heated by steam-pipes in winter. This air then penetrates throughout the house by apertures in the skirtings and cornices. In the roof of the house is a foul air chamber with which each room connects by exhaust shafts. The kitchen fire is utilized to produce exhaust suction in a large shaft running from the foul air chamber to the back of the fire, and travels again up and out by the chimney. It is calculated that the atmosphere is entirely changed throughout the dwelling in twenty minutes without the slightest draught. The even temperature throughout is an argument in favor of health, the absence of dust from fires and the small cost of heating is an argument in favor of economy and housekeeping.

ICTHZOL is obtained from a bituminous mineral at Seefeld, in Tyrol, which is subjected to dry distillation in iron retorts, resulting in the production of a tarry-like substance of a peculiarly disagreeable odor; from this, after long standing, a thin fluid oil is separated. After thorough purification, it is treated with concentrated sulphuric acid. The superfluous sulphuric and sulphurous acids have then to be separated from the sulphate which is formed. It has the consistency of vaseline—partly soluble in ether and partly in alcohol—totally in a mixture of the two. Forms an emulsion with water, and may be mixed in any proportion with vaseline and fat. The mineral from which it is derived contains in its matrix a great number of fossil imprints of fishes, and the bitumen is regarded as the animal remains of these —hence the name.

It has been employed with good results in eczema, and Prof. Unna, of Hamburg, speaking of its use in acute and chronic rheumatic arthritis, says: "I believe from my few cases I may say that, up to the present time, there is no external application of equal efficiency." It has not been found useful in simple neuralgias. If added to a large quantity of water and heated, the icthzol is decomposed, giving off H_2SO_3 S &c. Employed by way of inhalation in this manner, Herr Unna has observed remarkable results in affections of the respiratory tract.—*Med. Press and Circular.*

SUBCUTANEOUS INJECTIONS OF ETHER.—Dr. Moizard in the *Jour. de Med. et de Chi.*, calls attention to the care that must be taken in selecting a proper site for these injections. When used upon the forearm paralysis has ensued, especially of the extensor communis digitorum, in one case lasting about a month. These injections have become useful in adynamia from various causes to sustain the enfeebled forces, and the local inflammation produced can be generally prevented by inserting the needle deeply into the subcutaneous cellular tissue, and a selection by preference should always be made where this tissue is the thickest, as over the superior and external parts of the thigh.

The amount usually employed is from 0.28 to 0.30 centigr., and can be repeated frequently, as it is very rapidly eliminated, which is well shown by the characteristic odor of the patient's breath, a few moments after its use. It is quite as useful in children as in adults, and is a remarkable adjuvant to the use of alcohol.

THE LIGATURE TIGHTENER.—Mr. John Clay, *Lancet*, June 9, 1883.—This instrument is devised for application to a stricture so situated that the fingers cannot be efficiently used to tighten the ligature; or of being applied to a morbid growth, the size of which requires greater constrictive power than can be produced with the fingers alone. The ends of the ligature are fastened to the stem of the instrument, which is then worked as an ordinary wire-rope écraseur.

ELECTION OF PROF. RICHET TO THE FRENCH ACADEMY OF SCIENCES.—The French medical press is congratulating the profession on the election of Prof. Richet to the Academy of Sciences in the place of Ledillot in the Section of Medicine and

Surgery. It seems that Brown-Sequard was his principal competitor, and the election of Richet silences two objections which were urged, viz: that neither medicine or surgery can be classed among the sciences, and that the physician exercises a lucrative profession, and is not a disinterested high priest of science. In the light of development and evolution our catalogue of the fixed sciences has become very small, and happily other professions, such as that of the engineer, the chemist, etc., have been lucrative in themselves.

NEW JOURNALS.

THE *American Psychological Journal* is issued quarterly by the National Association for the Protection of the Insane and the Prevention of Insanity. Joseph Parish, M.D,. of Burlington, New Jersey, is the editor.

THE ELECTRIC LIGHT FOR MICROSCOPIC WORK.—Dr. Henri Van Heurck, in the *Journal de Micrographie* for May, 1883, gives a very interesting account of the utilization of the electric light for illuminating the microscope and for use in microphotographing. In illuminating the field, the delicate striæ of the amphipleura and the nineteenth group of Nobert's test were defined with perfect distinctness. Professor Abbe explains this as due, 1st, to the great whiteness of the light; by the mensurations made by Prof. Abbe in different monochromatic illuminators, it has been demonstrated that the separating power of an objective of a given aperture increases in the same proportion that the wave length of the light employed dimishes; it results, therefore, that the electric light will show delicate details more readily than the yellow light of gas or of lamps. 2d. The specific intensity of the electric light being much greater than that of other artificial lights, a sufficient illumination is obtained by a pencil of light that is much smaller than can be obtained by any other means.

These minute electric lamps can be attached to the microscope in three ways: 1, attached above the objective by a collar which permits rotation upon an articulated arm for illuminating opaque objects; 2, placed on the substage so as to be pushed laterally, when required, and give oblique illuminations; 3, with greater illuminating power and attached to an articulating arm in place of the mirror, to be used in polarization and photomicrography. The microscope is placed upon a metal plate, and is provided with a lobinet which diminishes or increases the force of the electric current, and a commutator in three directions allows the current to pass at will to any one of the three lamps.

NEW DRUGS.

KAIRINE.—This comes to us from Vienna, where last year attempts were made to find a substitute for quinine, resulting in the synthetic manufacture of chinoline out of aniline, nitro-benzol, glycerine and sulphuric acid, which had anti-febrile properties. Other experiments gave us from chinoline a preparation technically called methoxychinolinetetrahydride, to which the name of kairine has been given. It is an oil that unites with hydrochloric acid. One striking effect is shown in coloring the urine of the person taking it brown or olive green, and more rarely grass-green. The urine usually contained bacteria in considerable quantity. Prof. Ludwig gave this account at a recent meeting of the Royal Medical Society of Vienna, and Prof. Drasche gave his experience with it. In doses of ½ grain every two hours up to three grains in the twenty-four, a considerable fall of temperature took place, accompanied by shivering and grave symptoms of collapse. He afterwards gave it in 0.2 grain doses until 2 grains had been given in twenty-four hours. The dose of 0.3 grains caused a fall of 5.° 8½ F. in a case of pneumonia, and in another a dose of 0.2 grains reduced the temperature 7.° 8 F. Doses of 0.3 grain in a severe case of typhoid fever gave rise to rigors, collapse, and feebleness of cardiac action. He considers that kairine is superior to all other drugs as a promptly-acting anti-pyretic, and that it has a great future before it.—*Medical Press and Circular.*

NEW INVENTIONS.

AN AUTOMATIC TONGUE-DEPRESSOR..—Dr. Alexander Ferguson gives a wood-cut and description of this instrument in the *British Medical Journal*, which, without the cut, may be described as a blade which applies to the tongue, and is so constructed on a sliding principle, as to suit it to any size of tongue—that is, it can be lengthened or shortened at will. The tongue-plate is provided by an arm at right angles to it, when open, which has a ratchet fitting into a tube attached to a chin plate and caught there by a tooth. The chin plate is horseshoe in shape and lined with morocco leather, being so constructed as to comfortably adapt itself to the long ridges of the lower jaw. The inventor condemns the chin-pad of ordinary tongue-depressors, as, by being applied to the soft parts, they serve to press the tongue upwards. Both blades are jointed, and closing, make the instrument so compact as to be carried in the vest pocket.

EDITORIAL.

ADVERTISEMENTS.—Under the head of correspondence will be found a brief letter from Dr. G.R. Henry, of Burlington, Iowa, making vigorous protest against the insertion of advertisements in the advertising columns of the JOURNAL concerning "ready made prescriptions," etc. If our correspondent had examined more carefully the advertisement of Parke, Davis & Co., on our last page, he would have seen that it contained no reference to *prescriptions* of any kind. While the well-known firm to which our correspondent refers, has yielded to the pernicious practice, at present almost universal among drug manufacturers, of putting up and selling "ready-made prescriptions" or formulæ, they are entitled to the credit of abstaining from the still more objectionable practice of resorting to *trade-mark*, *copyright*, or other means of holding exclusive proprietorship in

medicines of any kind. The rule adopted by the Board of Trustees, and sanctioned by the National Association, concerning advertisements in this JOURNAL is as follows: "Advertisements may be admitted from medical educational institutions and hospitals open for clinical instruction, from book publishers, pharmaceutists, instrument makers, and all other legitimate business interests. But all advertisements of *proprietory, trade-mark, copyrighted,* or *patented* medicines, should be excluded. Neither should any advertisement be admitted with one or more names of members of the profession as endorsers, having their *official titles* or *positions* attached."

If we violate this rule, it will be by mistake or inadvertence.

EPIDEMIC CHOLERA.—For two or three years the prevalence of this disease has been steadily increasing in India, and during the present season is prevailing, in a severe form, in Egypt.

This event has created no little alarm in the countries of Western Europe, and their governments are taking active quarantine and other sanitary precautions for preventing its introduction into their respective countries. It is probable that the value or efficacy of such measures in preventing the spread of this pestilence from one country to another will receive a fairer test than ever before.

The popular doctrine, both in and out of the profession, is that the disease is caused by some species of organic germ, capable of being transported in various ways from one place to another, more especially along the lines of travel and commerce. There are many facts, however, connected with the history of past epidemics of the disease, that are not readily explainable upon such a theory. And it is not quite certain that special meteorological conditions, existing coincidentally with bad local sanitary states, have not more influence over the question of its prevalence, either in Western Europe or in our own country, than that of the importation of its supposed cause. If its increase in India and present prevalence in Egypt is really the beginning of one of those wide-spreading epidemics, such as occurred from 1848 to 1854, it will not be likely to reach Western Europe until late the present season, or early the next summer, and this country the summer following. But in neither this nor any other civilized country can the governmental authorities give too great an amount of attention to the removal of every source of local contamination of air, water, and soil.

NEW SUBSCRIBERS.—To save answering the same question many times, it is proper to state that a sufficient number of extra copies of this journal have been printed to supply all new subscribers, or additional members who may desire it, with the numbers from the beginning, and we shall be careful to keep enough of each issue on hand to furnish complete files for, at least, six months to come.

DISCUSSIONS BEFORE THE SECTIONS.—In answer to several inquiries, it is proper to state, that no reports of the remarks made by members in discussing the papers read in the several Sections of the Association, have been made in the majority of instances.

In such, of course, none can be published in connection with the publication of the papers. In other instances, however, reports of the remarks made have been preserved and revised by the speakers. In all such cases we shall endeavor to have the reported comments appear with the papers to which they relate.

CORRESPONDENCE.

CHICAGO LETTER.

[For THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.]

Chicago, it seems, is about to be blest with several new hospitals. The one most recently mentioned has been started by several Presbyterian gentlemen. At present there is but one Protestant general hospital in the city. St. Luke's, which is under the care of the Episcopalians. A charter has been obtained for the Presbyterian Hospital by Tuthill King, Daniel K. Pearsons, William Blair, Robert C. Hamill, John H. Barrows, C. M. Henderson, John B. Drake, Nathan Corwith, Samuel M. Moore, Henry M. Lyman, James M. Horton, Willis G. Craig, Cyrus H. McCormick, Jacob Beidler and J. P. Ross. The hospital is promised at no distant day, as many of our wealthy citizens insure its financial success. It will not be denominational further than being under Presbyterian management.

Rush Medical College is about to build a hospital of its own on ground in close proximity to the college buildings. The hospital will be built so that it can be enlarged in the future. The college is undoubtedly led to make this move because of the many hinderances thrown in the way of clinical teaching in the County Hospital, by the County Commissioners. During the last two years or more, the students have not been allowed to enter the wards, and go to the bedside for instruction, but have been required to receive all clinical instruction in the amphitheater. More recently the Board of Medical Attendants were all discharged, and on the new Board only one member of the faculty of each of the colleges was appointed.

The New St. Luke's Hospital is fast nearing completion, and will be ready for occupancy in the course of a few months. This hospital has long needed enlargement. Its wards are always full to overflowing. The new building is expected to be one of the best planned hospitals in the country. They still have as much more ground as is now used, on which they can build in the future. This hospital will furnish much additional clinical material for the students of the Chicago Medical College. The hospital is only a few blocks from the college, and three of its staff are professors in that institution. They have been giving several clinics each week during the last year, in the old hospital. The Chicago Medical College is now peculiarly well supplied with clinical material, for in addition to St. Luke's Hospital, it still has the

use of the material in Mercy Hospital, which is situated on the same grounds with the college. Mercy Hospital accomodates between two and three hundred patients. Some four or five blocks off there is also the Michael Reese Hospital, in which occasional private clinics are held.

Our summer hospital, the floating hospital for babies, has entered on its annual era of usefulness. No charity is more worthy of commendation; by means of it the poor suffering children and their mothers, from our closely packed, poorly ventilated and drained tenement houses, are given a breath of pure fresh lake air. For a number of years this institution has done much for the poor children of our city. We are glad to say that an additional institution of the same character has just been opened upon the lake front, in the South division of the city. A breakwater running along the shore at the foot of 25th street has been covered by an awning, and a house has been built at one end for the storage of such articles as are necessary for the hospital, cots and swings are furnished for the comfort and accommodation of the little ones. Nurses and physicians are on hand each day from 6 A.M to 8 P.M.

The recently issued announcement of the Chicago Medical College contains the outline of a four year course which this faculty recommends. For many years they have offered only a graded three year's course. The need of an additional year is felt by all conscientious students, and this last provision will be welcomed by them. An honor has been conferred upon one of the best known and most respected members of the faculty of this college of which all his friends rejoice to learn. The North-Western University at its commencement in June, conferred upon Dr. Hosmer A. Johnson, the degree of Doctor of Laws.

Through the munificence of some of its friends, the Northwestern University has been cleared of all indebtedness, leaving the institution to enjoy the full benefit of the income from its magnificent property, which now amounts to over a million dollars. In 1881, Dr. John Evans, formerly a citizen of Chicago, but during recent years a resident of Denver, Colorado, offered the university, in addition to magnificent endowments that he had given it in its early history, $25,000 if they would raise $75,000 more before the university commencement of 1882, and also $25,000 towards a second $100,000 to be raised before the same time in 1883. The $200,000 thus to be raised would clear the institution of debt. Many friends of the institution united to raise the required amount. Mr. William Deering, however, by his great generosity contributed a considerable portion of it, giving $25,000 towards the first hundred and $50,000 towards the second hundred thousand.

The recent lard investigation in Chicago has attracted considerable interest on the part of the medical profession of the city, as several of its members were called upon for expert testimony. Just before Mr. Peter McGeoch's recent failure he refused to accept of Messrs. Fowler Brothers 500,000 tierces of lard, alleging that they were not pure as they should be, but were adulterated with cotton-seed oil and tallow. The Chicago Board of Trade undertook an investigation of the matter. Professor Walter S. Haines, Dr. I. N. Danforth, Dr. W. T. Belfield, Dr. R. Tilley and Dr. P. S. Hays were variously employed as experts. In the course of his investigations Dr. Belfield found that by allowing the fats to crystallize out of an etherial solution, lard and tallow could be readily distinguished from one another. The former produce plate-like crystals, rhomboidal in shape and bevelled at the ends; the latter are plume-like and curved as the italic *f*. Among the many experts called in the case by both sides were Professors Remsen, Doremus, Witthaus, Sharpless and Habersham. For the present the investigation is closed, but will be reopened in August, when it is understood further expert testimony will be procured.

The State Microscopical Society is making preparations to receive the members of the American Society of Microscopists who meet here in August. A large meeting is expected, as many, undoubtedly, who intend to attend the meeting of the American Association for the Advancement of Sciences, which convenes a little later in St. Paul, will start early enough to attend the Society of Microscopists here. A reception will be tendered the society at the Calumet Club on August 9. A fine display of microscopical objects, it is hoped, will add to the interest and entertainment of the evening.

In this letter I shall not have an opportunity to speak of the work being done by our medical and other scientific societies, although meetings of interest are still being regularly held by them.

BOSTON LETTER.

[For The Journal of the American Medical Association.]

With the annual meeting of the Massachusetts Medical Society, which usually occurs early in the month of June, each year, all the active society work in medical matters in Boston may be said to end. That event is the grand culmination of the season, and at its close the profession draws a long breath and prepares to enjoy a few weeks of relaxation from the really arduous duties of the previous nine months. With each summer a constantly increasing number of physicians adopt the vacation system, now so generally indulged by the rest of suffering, sweltering humanity, and the doctor is already beginning to look forward to the time when he may close his town residence entirely and spend an uninterrupted holiday of two or three months in some accessible suburban resort, instead of being restricted to occasional outings of two or three days, or at most a fornight, as is now generally the case. Our city is most fortunate in possessing a great number of picturesque and interesting localities in its immediate vicinity, and the many railways and other means of communication render it quite easy to reach almost any desirable point within a radius of fifty miles, at very moderate expense of time and money. A very considerable proportion of our winter population is to be found permanently domiciled in these country retreats during the heated term, and in many places the "summer residences" of our city people out-

number by far the houses of the original inhabitants of the town. With each year there is a steady increase in the number of these rural abodes, until in some places they seem like small cities by themselves. It has already come to pass that much of the winter society in Boston is so conveniently disposed at the various "shores" and "hills" that the feeling of strangeness is never known, as old friends and neighbors are always within an easy drive, or possibly reside within sight from the window. Several physicians are so fortunately situated as to be able to fly away with their friends, and spend the entire season in these delightful surroundings, thus obtaining much needed recreation, and giving to their winter patrons the feeling of security which their presence affords, in localities where good physicians are not always easily accessible, and where the need of their services may at any time become speedily urgent.

During the present week the chemical department of Harvard Medieal College is being transferred to its quarters in the newly-erected building, to which it was hoped and expected that the entire collegiate functions would ere this time have been transposed. A most unfortunate conflagration, which occurred early in June, in the main wing of the structure just as it was being finished, wrought such extensive damage both to the inside and out of the edifice, that it now seems highly probable that many of the laboratories and special departments will unavoidably be retained in the inconvenient and unsightly old building where they have for some years struggled and languished. It has for some time been an ardent hope among the friends of the college that a new building, and modern conveniences for work, would supply the necessary stimulus to enable the college to make necessary and radical changes in many ways, and to raise itself in its medical department to the position which its importence as a great university, its position as the leading New England educational institution, imperatively demands. Whether these changes will follow the magnificent gift of a noble building we cannot know for one year longer, but if the prolonged delay is at length followed by results so desirable no one will murmur.

Apropos, it is interesting to observe how a finished "fire-proof" building may be so completely ruined by a conflagration originating in one portion that months of labor are required to render any portion of the structure habitable. The question of fire-proof construction would really seem still as far from a positive solution as that of ventilation, or acoustic qualities in architecture, or of antisepsis in surgery. To this last, however, it still offers much similarity, in that its accidents are best treated by the "spray."

From our safe hermitage in Boston, where we sit down and rise up in safety, surrounded and defended by filth and off-scourings of every State around us, by quacks belonging to our own members, and by every sort of medical pretenders, with diplomas or without, who have been driven from the peaceful pursuit of their nefarious occupation in other places, and have come to Massachusetts, where they find a charitable reception and a secure asylum for the further prosecution of their peculiar practices, we cast our eyes complacently acrosss the border to our sister city of New York, and behold with equanimity the struggle there being enacted in regard to the Code question. Fortunately, no such cloud looms in our own professional horizon, no such agitation disturbs the apathetic sluggishness of our medical repose; in the words of the Queen's speech "our relations with all surrounding powers continue to be amicable."

When we reflect that these include all the men, women and things in any way connected with the so-called "practice of medicine," and that eclectics, clairovyants, mediums, seers, bone setters, abortionists and the rest are gathered into one happy family and nurtured under one and the same provision of law, in the providence of the Commonwealth of Massachusetts, it becomes at once evident that this State and this city are the nearest approximation to elysium yet demonstrated to a waiting and expectant race.

The recent closing of the *case celebre*, the "Tewksbury Investigation," has afforded a sensation of relief to a weary people who had begun to think the end was as far away as a verdict in chancery. Of all the State business ever transacted within the commonwealth, it is doubtful if any one action ever interested and concerned every calling, profession, trade, or occupation, and all ages, sexes, relations and previous conditions of servitude to the extent which this notorious exposé has done. The result has not been yet publicly announced, but two reports have been presented, a minority and a majority report. The latter is an able and vigorous document, and treats the entire subject in the most clear and candid manner. It directly accuses the Governor, Gen. B. F. Butler, of making charges against the institution which have no foundation in fact, and spares no words in denunciation of the manner in which the chief executive magistrate of the State has conducted the case as prosecuting officer. It is doubtful if any incumbent of the gubernatorial chair has ever received such a castigation at the hands of a legislative committee, and it is sincerely to be hoped that no one has ever been proved so worthy of censure. The report is very long, and recites every grievance mentioned by the prosecution, most of which do not directly interest the medical profession, but its closing paragraphs are so concise, so clear, and so comprehensive in relation to the general sanitary and hygienic condition of the State Almshouse, that every physician must feel an interest in its perusal.

The treatment accorded by his Excellency to the professors and teachers of Harvard University has also been deemed worthy of rebuke. What, if any result follows this scandalous investigation is still a matter of conjecture, but the moral atmosphere and the daily press have already become somewhat purer since the testimony in the case was concluded. Appended is a verbatim copy of the final clauses of this admirable report, as it was presented to the legislature by the joint committee from the two houses:

"We have visited Tewksbury—many of us several times—and examined the institution in all its parts. We have seen and tasted the food of its inmates, and had before us the men who cooked it and served it

for many years. We have had before us one of the late trustees, the superintendent, the clerk, the physician, matrons, the nurses and attendants. We have examined the official reports of the State Board of health, lunacy and charity., which by agreement are made part of the case. Further, we have had before us Fr. Gigault, of Lowell, the Catholic priest, whose presence is such a benediction at the almshouse; also the official report of Mrs. Clara T. Leonard, one of the efficient members of the State Board; also Dr. George A. Tucker, the eminent expert from Australia, and Dr. Charles F. Folsom. And, after hearing all the evidence in the protracted hearing, we declare the present condition of the State Almshouse at Tewksbury to be good, and with one single exception,

ENTIRELY WORTHY THE STATE.

That one exception is that the appropriations have been too small. The evidence is cumulative that there should be more and better attendants and better food for the sick and infirm, more amusements and recreation for the hopeless insane, and other things as recommended by Mrs. Leonard in her official report:

We pronounce the main charges of His Excellency the Governor groundless and cruel. The question of infant mortality was an old one, well settled, as everybody knew. The delivery of dead bodies under the law was under the control of the trustees and superintendent, and any irregularity should have been remedied by them without publicity, if proof thereof had been furnished, and the people of this proud commonwealth would have been saved from the shame and humiliation so recklessly and needlessly brought upon them. Surely the truth should have been ascertained before making such awful charges.

Our order was to investigate the other institutions, but we have heard no cause of complaint, and have had no time to devote to them. We made the ordinary tour of inspection, and found them in good condition.

We commend to the Legislature and to the people all our public charitable institutions as still worthy this ancient commonwealth, although, in the language of one of his Excellency's distinguished predecessors, they are constantly requiring changes to meet the recurring exigencies and the demands of a progressive philanthropy.

Your committee desires to place upon the record their strong disapprobation of some things said and done by the Governor during the course of this hearing. We pass by the insults to the committee and to the chairman who presided at this hearing by invitation of the regular chairman, with consent of the committee; also the reference in the argument to "clearing out this State House" by his veteran comrades; and consider graver things. His excellency announced, on the first evening of the hearing, that he had not come into the case

WITH A BLACKING BRUSH.

But when, in cross-examination of a young lady witness [p. 1839], in order to ascertain whether, in a certain campaign, a distinguished citizen of this State tarried over night at the State almshouse, he said: "I don't know what you knew by sleeping with him"; when he spoke of a matron who had been a witness as "that little chit, who could do no good among old men except to excite their passions"; when he insinuated that the father of Charlotte Anderson's child was the aged superintendent of the almshouse; when he tried in vain to make Thomas Kelliher, one of his witnesses, admit that he took money and suffered imprisonment for being the father of a bastard child on solicitation of the assistant superintendent; when he suggested that another respectable lady witness employed at Tewksbury belonged to "the harem"; when he spoke of the State almshouse as a "hell upon earth," and the home for discharged females at Dedham as a "den"; when he spoke of the eminent physicians who controverted Dixwell's testimony as the "refuse" and again as the "empytings" of Harvard medical school, and again as "rascals" and "runts," your committee thought the blacking brush had been brought into requisition. When he, in his argument, related his own disgusting description of the operation of craniotomy; when he brandished what he called a woman's skin and pointed to the audience the nipple of the woman; when to defend the New York witness, Eva Bowen, he averred that, under God, her seduction and fall are due to the school system of Massachusetts; when we see him flourish a piece of human skin which had not been put into the case, with an alleged crucifix tattooed upon it; when he alluded to old and young men whose jaded passions are to be excited by wearing slippers made from a woman's breast, your committee blushed for the commonwealth, and turned away in amazement. But worse than these was his portentous reference to the French revolution. Can it be possible that the people of this commonwealth are slumbering upon such a volcano as burst upon the people of France in 1789, whose fires are to be kindled because four reckless medical students have caused to be tanned for their own purposes a few pieces of human skin? Is this what his Excellency means when he says we must see that the wheel don't go round once again?

We have examined the 3,000 proofs of the testimony in this case with solicitude to be just, just to the management of the Tewsbury almshouse, just to His Excellency the Governor, who made the charges and conducted the prosecution, and, above all, just to the commonwealth whose servants we are.

ONSLOW GILMORE,
EDWARD P. LORING,
Senate.
GEORGE E. LEARNARD,
ROGER WOLCOTT,
GEORGE D. CHAMBERLAIN,
WILLIAM E. CHESTER,
LYMAN K. PUTNEY,
House.

BURLINGTON, IOWA, July 23, 1883.

Dear Doctor.—I have received your first number, and am delighted with it as a journal; but I am not so pleased with your advertisements. Parke, Davis & Co. have bored the physicians of the Northwest sufficiently with their ready-made prescriptions. In

fact, they have taken the place of Ayer's Pectoral and Humbold's Buchu, and are patronized by all the quacks and all the patent medicine men in this country. Soon I presume you will advertise Warner's safe cure for kidney trouble. Now, I protest right here against the organ of the American Medical Association being the means of disseminating any such advertisements. I ask a place for this in your correspondent's column, and see if I am not indorsed by nine-tenths of the physicians in the land.

Yours truly, G. R. HENRY, M.D.

CHOLERA.

BY H. RAYMOND ROGERS, M.D., DUNKIRK, N. Y.

Words of warning come from the East, of the approach of cholera in its worst form. To the medical profession, therefore, to be forewarned should be to be forearmed. The duty of the hour is to look well to our conceptions of the disease—its cause, its pathology and its treatment. We have to-day only the experience of the past to guide us. This, confessedly, is not assuring; since all theories and all forms of treatment have been fruitful only of disastrous results. In fact, no treatment at all has given nearly as good results as the most scientific treatment. The average mortality has ever been 50 per cent. of the persons attacked.

Under these circumstances only one course is open to us, *i. e.*, to boldly discard all old theories, and every system of practice, and improve the opportunity to study each case with earnestness, to the end that we may find a philosophy that will take into account all its phenomena, and constitute an exact science of the disease. Briefly, the demand is for a new foundation.

In response to this imperative demand I submit a theory of the disease which, in practice, has afforded good results, viz: 1. That cholera is a true neurosis; 2. that it consists essentially in a disturbance of the general innervation; 3. that its leading symptom is a true hæmorrhage; 4. that its source is to be sought for in meteorological conditions.

That it is a true neurosis is abundantly demonstrated. The fact that a person in full health and strength may be attacked and die in the space of twenty or thirty minutes, effectually disposes of every theory of poison, and shows conclusively that in these rapidly fatal cases the force of the disease is expended upon the brain and nervous system. No evidence of the action, or existence of poison, has yet been discovered, even after many thousands of autopsies conducted with the most rigorous exactness.

The initial sense of malaise, the regurgitative vomiting, the cramps, and the unlocking of the walls of the blood-vessels, permitting the escape of the serum into the stomach and bowels,—these all indicate a disturbed innervation.

That the leading symptom—the rice-water discharges—is a true hæmorrhage is, demonstrated by the fact that these are constituted of the serous element of the blood. The rapid escape of a single element of the blood is disastrous in the same manner as the escape of the full blood itself in abortion and other forms of active hæmorrhage.

To discuss its source and mode of dissemination now, would not be wise or profitable, as this can be done more intelligently after an epidemic. We know that this disease laughs at a *cordon sanitaire*, or quarantine.

The characteristic symptoms, and the pathological conditions, unerringly determine the mode of treatment. If we would look upon cholera-hæmorrhage as subject to the same general principles of treatment as other hæmorrhages are, the question of treatment would become a simple one.

The horizontal position, or with the body more or less inclined, with the head downward—according to the gravity of the case—and persistently continued until convalescence is assured, is the sheet-anchor in the treatment of this diseuse.

When we consider that the physiological action of the mucous membrane is reversed in this disease,—that exosmosis takes the place of endosmosis, the futility of relying upon remedies internally administered becomes apparent. The medication *par excellence*, is morphia hypodermically applied, or sprinkled upon a blistered surface. This remedy changes the perturbed condition of the nervous system, and effectually, and quickly, closes up the diminutive avenues through which the life current ebbs away. For the mouth, but little is required save pounded ice, or cool water, frequently repeated.

Much can be done in staying the progress of this scourge, when epidemic, by informing the public through the columns of the press as to what should be done *immediately*, when diarrhœa sets in, viz: that a mild opiate should be taken, and more or less frequently repeated, and the horizontal position maintained for a number of hours. This course would prevent a fatal termination in a majority of the attacks.

The larger proportion of the cases which occur during an epidemic are due *alone* to the effects of fear, and a knowledge of the fact that these simple precautions will rob the disease of half its dangers, will go far to remove such fear, and thus secure a degree of exemption from its ravages.[1]

[1] This subject is more fully treated by the writer in the Transactions of the American Medical Association for 1876.

REVIEWS.

THE RELATION OF MICRO-ORGANISMS TO DISEASE. By WM. T. BELFIELD, M.D., Chicago. W. T. Keener, 1883.

Such wide publicity has already been given to this admirable work of Dr. Belfield throughout both the professional and non-professional press, that it is almost needless to remark it is a reprint of the Cartwright lectures, recently delivered by him in New York, before the Alumni Association of the College of Physicians and Surgeons. That he fully appreciated the compliment bestowed upon him by the invitation to deliver these lectures, is plainly evinced by the amount of care which he has taken in their

preparation, for they bear the imprint of most diligent research. The value of his publication is greatly enhanced by the addition of numerous excellent cuts of the various forms of bacteria, copied for the most part from photograms by Koch.

The scope of the work may be estimated by reference to the classification which the author has made of the evidence upon which the germ theory rests. He discusses first the evidence with regard to anthrax, whose bacterial origin has been affirmed by inoculation experiments in the hands of several competent observers. Second, the testimony regarding tuberculosis, which has been adduced by one competent observer. Third, those diseases which are characterized by the presence of bacteria in the tissues, but which have not been induced by inoculation with isolated bacteria. Fourth, those diseases, after death from which bacteria have been discovered in the tissues, and fifth, those diseases in which the presence of bacteria has been asserted.

The entire subject is treated from the standpoint of one who has closely followed the development of an intricate problem, and has endeavored to deduce therefrom the logical results, and thus accurately define the present status of an important question.

BOOKS AND EXCHANGES RECEIVED.

The *Cincinnati Lancet and Clinic*, June 30 and July 21, 1883.

The *Sanitarian*, New York, July 19, 1883.

Transactions of the Medical Society of the State of West Virginia, Sixteenth Annual Session, 1883.

How to Conduct Inquests and Post-Mortems, and how to Give Official and Expert Testimony before Courts of Law in Cases of Homicide. By C. H. Von Klein, M.D., Hamilton, Ohio.

MEDICAL SOCIETY ITEMS.

MEETINGS OF SOCIETIES, ETC.

The British Medical Association holds its fifty-first annual meeting at Liverpool, England, on July 31 to August 4, and the three main physical requirements which the editor of the *British Medical Journal* sets forth as necessary for a place of meeting, commend themselves with full force to the American Medical Association. They are (1) facilities of success, (2) ample hotel and other accommodation, and (3) local attractions. The work in the sections has been arranged for the most part at least seven weeks before the meeting, and is full and comprehensive, and among the entertainments for relaxation is the annual banquet, which is conducted through subscriptions by the members. The Association has thirty branches, with a membership of 7,416.

The Medical Society of Virginia will hold its Fourteenth Annual Session at Rockbridge, Alum Springs, Va., September 4, 5 and 6. It is expected to be a session of more than ordinary interest. Several visitors from other States are expected to be in attendance who have promised papers. Dr. Wm. D. Cooper, of Morrisville, Va., is President; Dr. Hugh M. Taylor, of Richmond, Va., Corresponding Secretary and Dr. Landon B. Edwards, of Richmond, Va., Recording Secretary, to either of whom letters of inquiry or communications intended for the society may be sent.

SOCIETY NOTICES.

THE sixteenth annual session of the American Ophthalmological and Otological Association was held at Hotel Katerskill, Catskill Mountains, July 18.

AN Iowa State Veterinary Society was organized at Burlington, July 17.

THE thirteenth annual meeting of the Wisconsin Dental Society began July 17, at Milwaukee.

MISCELLANEOUS.

RECENT LAW TO REGULATE MEDICAL MATTERS IN MICHIGAN.

ACT NO. 167, LAWS OF 1883.

An Act to Promote Public Health.

SECTION 1. *The People of the State of Michigan enact*, That from and after this act shall take effect, it shall not be lawful for any person to practice medicine or surgery, or any branch thereof (except dentistry) in this State, without having the qualifications required in the provisions of this act, and without having first registered in the office of the county clerk as provided in this act.

SEC. 2. The necessary qualifications to practice medicine in this State shall be:

First, That every person who shall have actually practiced medicine continuously for at least five years in this State, and who is so practicing when this act shall take effect, shall be deemed qualified to practice medicine in this State, after having registered in the office of the county clerk as provided by this act.

Second, Every graduate of any legally authorized medical college in this State, or in any one of the United States, or any other country, shall be deemed qualified to practice medicine and surgery in all its departments, after having registered as provided in this act. *Provided*, That the provisions of this act shall not be construed so as to prohibit any student or under graduate from practicing with and under the instruction of any person legally qualified to practice medicine and surgery under and by the provisions of this act. *Provided*, That every person qualified to practice medicine and surgery under the provisions of this act, shall, within three months after this act shall take effect, file with the county clerk of the county wherein he has been engaged in practice or in which he intends to practice, a statement sworn to before any officer authorized to administer oaths in said

county, setting forth, first, (if he is actually engaged in practice in said county), the length of time he has been engaged in such continuous practice, and if a graduate of any medical college, the name of the same and where located, when he graduated, and the length of time he attended the same. also the school of medicine to which he belongs. And if he is a student or under graduate, the length of time he has been engaged in the study of medicine, and where, and if he has attended a medical college, the name of the same, and where located, and the length of time so attended and when, also the name and residence of the physician under whose instruction he is practicing or intends to practice. It shall be the duty of the county clerk of each county in this State to record in a book provided by the county, the affidavit (or sworn statement) of every physician practicing in said county. For recording each statement the county clerk shall receive fifty cents, to be paid by the person filing the same.

SEC. 3. It shall be the duty of the supervisor, at the time of making the annual assessment in each year, to make out a list of all the physicians and each student practicing under the instructions of a preceptor residing within his township, village, ward or city, with the name, age, sex, and color of each, and the length of time each has been engaged in practice, and if a graduate of a regularly established and reputable college, the name of the college and the date of graduation. Such list shall be returned by the supervisor to the township, village or city clerk, and by the clerk recorded in the book in which are kept the records of the local board of health.

SEC. 4. No person who practices medicine, surgery, or midwifery in any of their branches (except dentistry), shall be able in any of the courts of this State to collect pay for professional services rendered subsequent to the time that this act shall take effect, unless he was, at the time such professional services were rendered, duly qualified and registered as a medical practitioner according to the several provisions of this act.

SEC. 5. The supervisor, township, village or city clerk is hereby authorized to administer the oaths required by this act.

SEC. 6. Whoever advertises or holds himself out to the public as authorized to practice medicine or surgery in this State, when in fact he is not so authorized under the provisions of this act, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be liable to a fine of not less than five dollars nor more than fifty dollars for each offense.

SEC. 7. It shall be the duty of the supervisor and health officer of the local board of health in each township, village, ward or city to enforce this act.

Approved June 6, 1883.

A DISPUTE has arisen between the Louisiana State Board of Health and Dr. John H. Rauch, of the Illinois State Board of Health, and the Sanitary Council of the Mississippi Valley. The first-named Board asked the Governor of Louisiana to request the Governor of Illinois to request Dr. Rauch to attend to the affairs of his own State, and not to meddle with those of Louisiana. The difficulty arose from the recommendations of the Sanitary Council in regard to quarantine against yellow fever.

A RATHER odd suit has been brought in New York by a negro hotel waiter, who allowed eight ounces of his blood to be drawn and transfused into the arm of a white gentleman. The gentleman claims to have paid him and also paid for his services in his hotel bill, but still suit is brought against him for $250.

AN International Board of Health, with headquarters at Geneva or Lugano, is being discussed by several of the European powers.

CHOLERA has appeared among the British soldiers in Egypt at Cairo, Suez, and other points.

COLLEGE ITEMS.

To the chair of Physiology in the Westminster Hospital College, Dr. Heneage Gibbes has been appointed. At Cambridge, England, a chair of Physiology has been created, and Dr. Michael Foster has received the first appointment to it. To the chair of Anatomy in the same school, Dr. Alexander Macalister, of Dublin, and to the chair of Surgery Prof. Humphrey.

PROF. JOHN C. DALTON, the well-known teacher and author who has held the Professorship of Physiology in the College of Physicians and Surgeons, New York, for many years, has resigned the chair. Dr. John G. Curtis, who for several years has been the adjunct professor, will be his successor.

To the chair of Obstetrics and Diseases of Women and Children, in the University of Louisville, recently made vacant by the resignation of Profesrso Theophilus Parvin, Dr. John A. Octerlony has been elected.

THE chair of Diseases of the Mind and Nervous System, in the New York Post-Graduate College, has been given to Dr. Chas. L. Dana, and Dr. J. L. Corning has been made lecturer on the same subject.

NECROLOGY.

WARDER, JOHN A., of North Bend, Ohio, died July 14, 1883, aged 72.

LEFORGEE, WALKER L., died at Decatur, Ill., July 11, 1883; born in Marion Co., Ill. Aged 23 years.

THE Editor of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call the attention of the profession to. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 65 Randolph St., Chicago, Ill.